

METHANOL MENACE: TURBO BURNS

Radio Control **CAR ACTION**

THE WORLD'S PREMIER R/C

CAR MAGAZINE

October 1990

ROBO COP

R/C TRUCK

DIRT OVAL SPECIAL

- Buyers' Guide
- NATS Winners
- Dominator Secrets
- JG Bash

RC10 MID

RADICATOR ELIMINATOR

Radio Active



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USA \$3.50

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October 1990

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ON THE COVER: RoboCop approves of R/C car racing—enough to fit a Car Action photo session into his tight crime-stopping schedule. (Photo by Yamil Sued.) Top: Kyosho Turbo Burns. (Photo by Steve Pond.) (RoboCop is a registered trademark of Orion Pictures. Used by permission.)

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EDITORIAL

by STEVE POND

WHEN DAVID Semanik of Parma, OH, sent us a picture of his hybrid Traxxas/RoboCop truck for "Readers' Rides," we took an instant interest. This type of project is proof of a creative person—one who won't settle for what's available to everyone, but wants something unique that he can proudly call his own.

When we contacted David about sending us his RoboTruck so that we could feature it as a "Home-Built Project," he had no idea (nor did we, for that matter!) that we would put his masterpiece into the hands of RoboCop himself!

In this information-packed issue, you'll find a number of features that cover the ever-broadening subject of dirt-oval racing.

Articles on lowering your JR-X2 for on-road or oval racing and an in-depth look at the winning cars of the Dirt Oval Nationals are right here, so dirt-oval enthusiasts, *dig in!*

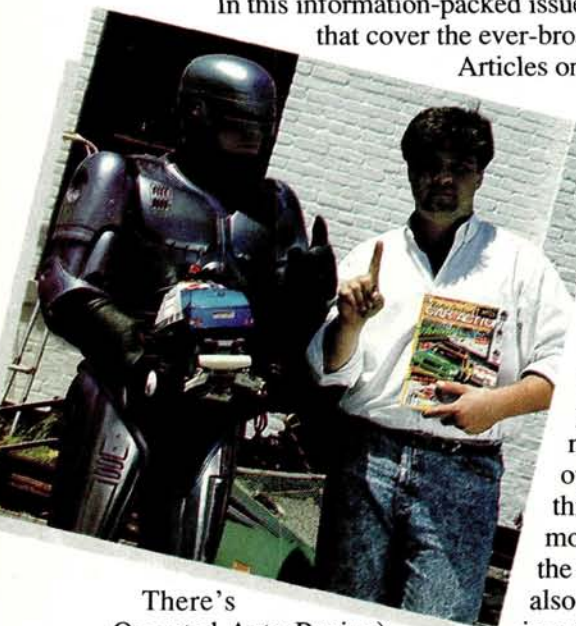
You'll find an article by yours truly about a new style of stock motor that's being introduced by Trinity Products. It's designed to be tamper-proof, and this will prevent it from being tweaked for more timing, which would give its owners an unfair advantage. I think this is a step in the right direction—a move to return stock racing back to the skilled drivers.

also some good news that ROAR (Radio

Operated Auto Racing) is proposing a stock-motor rule amendment that would limit timing to 24 degrees. This means that most stock motors would be manufactured with 24 degrees timing, and any attempt to tweak a motor would advance the timing beyond the limit and make that motor illegal.

I'm relieved to see that steps are being taken to make the hobby/sport more affordable and enjoyable for all. I applaud any effort taken by a manufacturer or organization to make R/C racing a possibility for more enthusiasts, rather than pricing them right out of the game.

If you feel the same way about your hobby and want to see it continue to grow, cast your vote. You don't have to go to a voting booth; you vote every time you go to the hobby shop: when you see manufacturers supporting your hobby, cast a vote for them! ■



LETTERS

We welcome your comments and suggestions. Letters should be addressed to "Letters," *Radio Control Car Action*, 251 Danbury Road, Wilton, CT 06897. Letters may be edited for clarity and brevity. We regret that, owing to the tremendous numbers of letters we receive, we cannot respond to every one.

YOU'VE ONLY GOT TWO

I've been reading *Car Action* for about three years. Recently, I've noticed articles that leave out something very important: safety. Some months ago, an author mentioned that he got glue in his eye. He never mentioned that he should have had his safety glasses on while gluing. I've read several articles that recommend using a Dremel tool. These tools run at very high speeds, and the little cut-off blades are very brittle. Any time you use a Dremel tool, you should wear safety glasses. In the evaluation of the Twister lathe, not a word was mentioned about safety glasses.

Wearing them for 5 minutes is all it takes.

By the way, I'm not in the safety-glass business. I'm a machinist, and I'm very concerned with eye safety.

STAN GORDON
Oxford, AL

Stan, thank you for reminding us how vulnerable our eyes are, and how important it is to follow safety procedure.

CC

STEEL GEARS GIVE SPECTATORS CHEERS

I own a Big Brute that I hope to make into a modified puller. Which gearbox is better for pulling—the Kyosho steel gear set or a complete Thorp gear conversion?

Love your magazine. Keep the awesome articles coming!

EVAN EVANS
Miami Beach, FL

Evan, the Kyosho steel puller gears are the better choice. Differential action isn't necessary or desirable for pulling.

CC

BARKING UP THE WRONG ELECTRONIC TREE

I'm a fan of *Car Action*. I enjoy every issue, but I still can't find any tips on what I want. I'm a beginner, and I have trouble understanding them.

I bought a Blackfoot in 1988, and I've been having trouble with it. My radio (an

THE IMPOSSIBLE TWO SECOND BARRIER HAS BEEN SHATTERED

The Team Astro Top Fuel Drag Motor keeps breaking IEDA international drag racing records from coast to coast. The two second barrier is just the beginning.

AWESOME ACCELERATION

The Astro Top Fuel Cobalt motor delivers AWESOME ACCELERATION! Ten super power cobalt magnets deliver unequalled TORQUE. Unlike wet magnets, our Cobalt magnets will never become demagnetised...no matter how much you abuse this motor. Our oversize commutator,



oversize brushes, skewed seven slot armature, and SIX TURNS of 19 gauge wire will safely handle all the amps your nicad can deliver. And our adjustable timing lets You fine tune Your motor for absolute AWESOME ACCELERATION.

YOU TOO CAN BREAK THE TWO-SECOND BARRIER

See Your hobby dealer TODAY and ask for Your Team Astro Top Fuel Cobalt Motor.

FLASH

Colton, CA: January 1990
Mike Hogue wins IEDAWinter Nationals.
Has 1.91-second run with his Astro Top Fuel II-powered Hogue Illusion.

TAKE NO PRISONERS

AstroFlight
13311 Beach Ave.

Aristo-Craft Challenger 2PX) is the biggest problem. I have to pull the trigger many times to get it to go. If I hold the trigger down, it won't run. When it does go, it doesn't go very far, so I have to pull it again. I want my Bigfoot to be the best it can be, so I'm asking how to fix it. Thanks!

JAMIE GARY
Lake Charles, LA

Jamie, your mechanical speed controller sounds like it's dirty, or just plain shot. Buy a new electronic speed controller—it will simplify and improve everything. If, however, you can't swing it now, try one of Parma's or Bolink's mechanical speed controllers with wiper arms.

They're among the best of the servo-operated type. CC

WELL EXCUUUUSE ME!

In your August '90 issue, Chris Chianelli said that the gross weight of the Hirobo Toyota Celica with battery pack was only 4 ounces! How can this be? The Celica would weigh 4 ounces even without a battery. This is the lightest 1/10-scale car in the world!

JOHN BERNARD, JR.
Hamburg, NY

No, John, the Hirobo Celica isn't even close to being the lightest 1/10-scale car in the world. I was suffering from light-headedness, and I glitched-out at the keyboard.

The correct weight is 4 pounds, not 4 ounces. CC

MONSTER CONTROL

I'm looking for a speed controller that has variable forward and reverse speeds and can operate on the dual-motor Clod Buster. I use Sanyo 8.4V, 1700 to 4400mAh batteries and run my Clod Buster in school yards and parking lots. Also, I need to know how much it would cost, and if it can be installed by a novice.

RENE ROHKOHL
Huntington Station, NY

(Continued on page 12)

POWER MONSTER

Power is the only thing Monster trucks understand. And Team Astro speaks their language. Ten super power cobalt magnets, a skewed seven slot armature, twelve turns of 22 gauge wire, an oversize commutator, oversize brushes, and adjustable timing. They all spell FULL PULL POWER.

RECORDS ARE FALLING

Team Astro Pullmaster motors are powering Monster trucks to new records at NARCTPA truck pulls all over the midwest. The reasons are many but they all boil down to one thing...the Team Astro Pullmaster Cobalt Motor delivers a full pull every time.



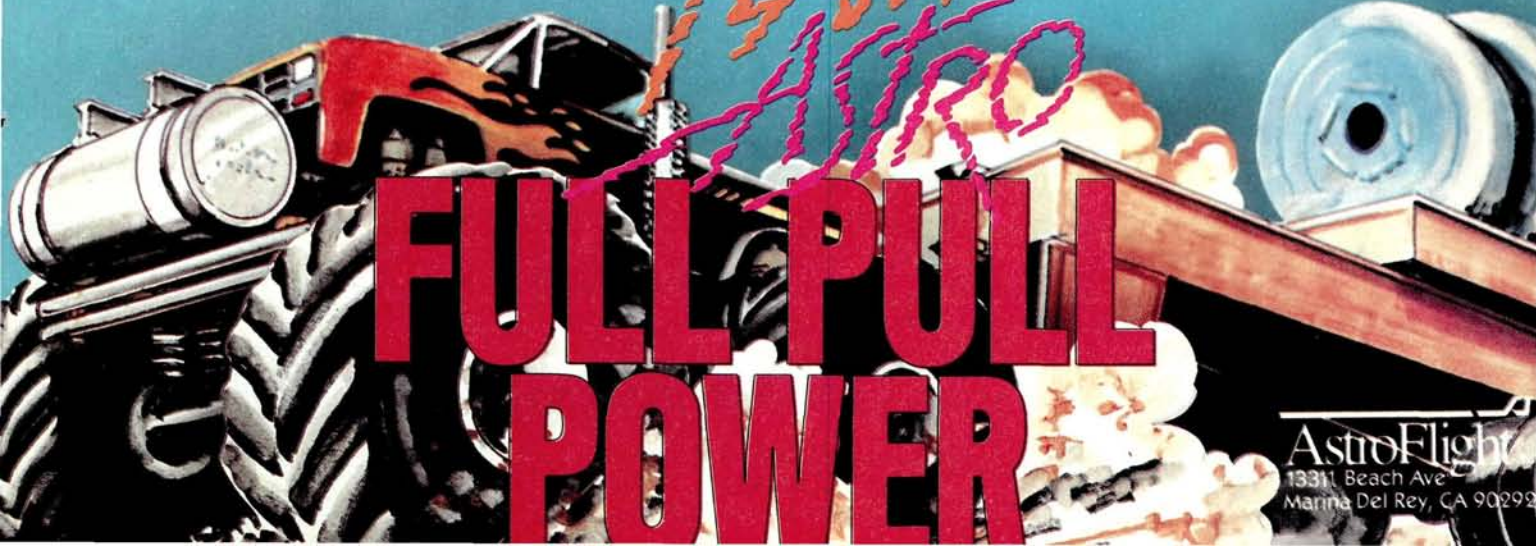
NO NEED TO BE LEFT BEHIND

See your favorite hobby dealer TODAY and ask for the Team Astro Pullmaster Cobalt motor.

◆◆◆◆◆ FLASH! ◆◆◆◆◆

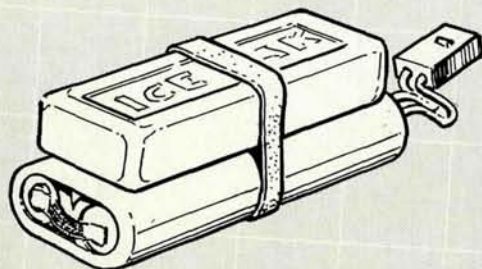
World Records at NR/CTPA World Championships

On October 14th & 15th
TWO WORLD RECORDS were set
using Team Astro PULLMASTER motors
2WD Open I: 203 lbs.
1ST PLACE: Charles Allen
2WD Open II 350 lbs.
1ST PLACE: Gary Kmit -



PIT TIPS

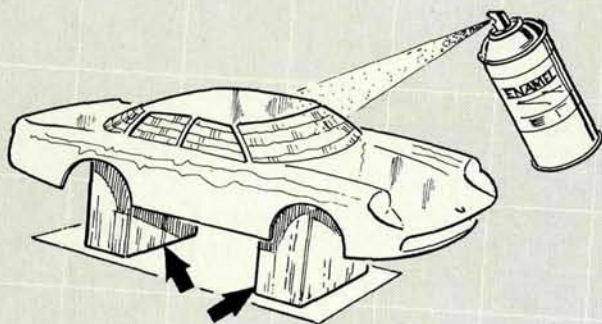
by JIM NEWMAN



NI-CD COOLER

After running down that Ni-Cd pack, cool it quickly by attaching a frozen pack (available at most supermarkets) to one or both sides with a rubber band.

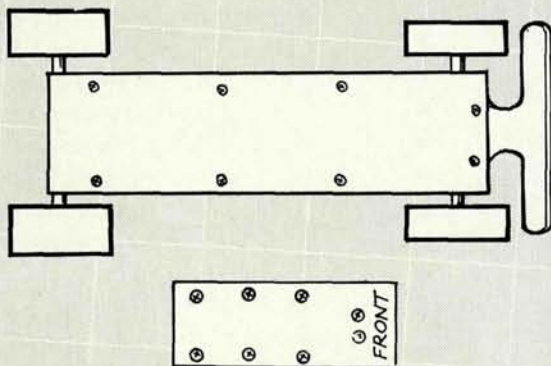
Dan Horndasch, Piscataway, NJ



BODY-PAINTING SUPPORTS

Don't put your body shell on a workbench or newspapers to spray paint it—you'll soon find it stuck to whatever it's sitting on! Raise it on wooden blocks. This trick not only prevents the body from sticking to surfaces, but it also allows you to properly spray the lower edges.

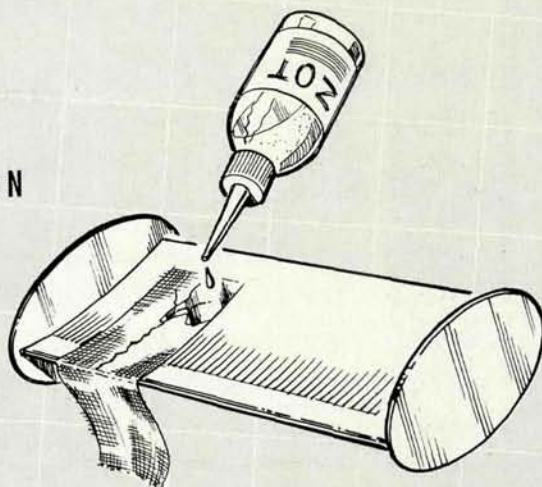
Jamie Rahman, Augusta, MI



SCREW HOLDER AND I.D. CADDY

Usually, R/C cars use several screw sizes, and when you disassemble one, it's important to keep track of which screw goes where. This simple idea guarantees that you'll be able to put your car back together properly. Cut a piece of corrugated card to the shape of your car, and mark the pattern of screw holes on it. As you remove each screw, place it into the corresponding hole in the card.

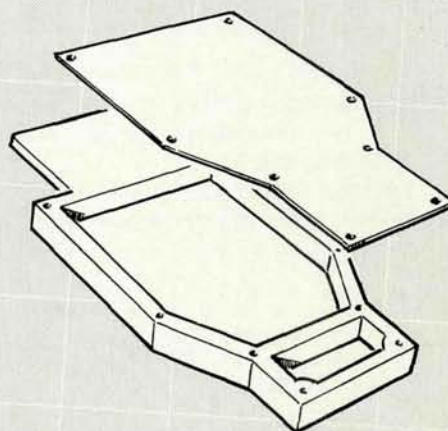
Lee Bennett, Deming, NM



CRACKED SPOILER REPAIR

This "instant fix" should prove useful at the track. Lay a piece of thin fiberglass cloth over the crack in your vehicle's spoiler—1-ounce cloth should do—and drip instant-setting CA on it. The resulting repair is nearly invisible.

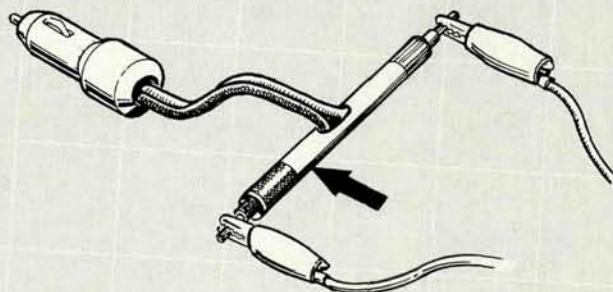
Joe Davis, Saugerties, NY



CHASSIS DIRT SHIELD

On the Frog and the Brat, the chassis bottom is open and can be damaged by stones, grit, etc. Our contributor made a simple closure, and you can do the same using thin aluminum or plastic. I'm not sure I would use the screws he recommends, though, because there's a danger of weakening the chassis rails. Why not retain the bottom with double-sided urethane tape?

Erik Johnson, Gary, IN



CIGARETTE-LIGHTER ADAPTER

Now you can connect your 12V charger to a cigarette lighter without changing the useful alligator clips. Cut a Radio Shack automobile-lighter replacement power cord (no. 270-021) and feed the wires into a plastic tube—a large drinking straw works well—so that the positive and negative leads emerge from opposite ends. The tube keeps the alligator clips apart and prevents a hazardous short circuit. Color the ends of the tube red and black to match the appropriate wires.

Bob Foglesong, Hockessin, DE

ULTRA-Seals

frictionless sealed bearings

Goodbye DIRT & DUST

Boca Bearing ULTRA-Seals are Frictionless Sealed, Maintenance Free Race Bearings that virtually eliminate Dirt & Dust. They've been racer tested with tremendous results!!!

NOW AVAILABLE FOR RC10, TQ10, RC10/12L, JR-X2 ELIMINATOR 10/12, INVADER, PRO10 & OTHERS

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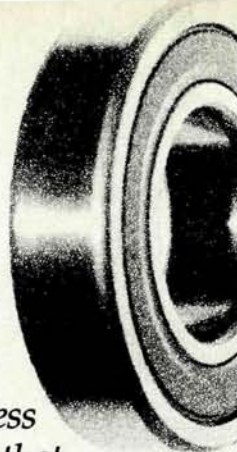
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FAX: (407) 488-9609

USA: 1-800-332-3256 / CANADA: 1-800-553-3256



LETTERS (Continued from page 9)

Rene, try the PDI Turbo Zeta; it handle, up to 32 cells, has proportional reverse and it's watertight for running in the mud. It lists for \$299.95. (Of course, it's available at a discount.) The PDI controller is no more difficult to hook-up, than any other electronic speed controller.

CC

ROAR ADDRESS

Where can I write to ROAR for membership? Last October, I wrote to the ROAR Information Center at P.O. Box 1536, Lawrenceville, GA 30246. My letter was returned this June. How do I get into this "exclusive club"? Please help me.

SEAN HIBBARD
Olean, NY

Sean, here's the correct address: ROAR, 288 East Maple, Suite 266, Birmingham, MI 48011.

CC

DON'T LOOK DOWN THE NOSE OF DOOM

OK, so my college degree wasn't in R/C, but I did get past the language barrier and on to racing. After plugging in my pulse, linear, trickle-charged, matched, peaked, pushed, dumped, dead-flat SCR/SCE cells and my hand-wound, diamond-true, unknown-torque, modified motor with capacitors, hard springs and slotted, contoured, timed brushes into my Tempfet ESC and AM crystallized BEC, someone always asks, in a condescending voice, how I can use a combination like that. In my limited experience (1 1/2 years), I've developed a strong desire to win, if only to make them wonder what it is that I'm doing right.

Although I read two monthly magazines from cover to cover and study the ads, I'm loaded with questions when I visit the hobby store. I'm sure that I'm not alone. As a challenge to the multitude of R/C manufacturers, I'd like to see the development of travelling seminars, where R/C followers can see the latest products, learn the best procedures and ask those perplexing questions.

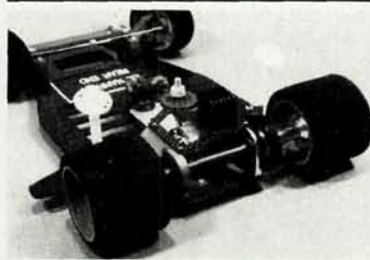
RICH LACHARITE
Worcester, MA

(Continued on page 26)



Manufacturer of the
Finest Innovative and
Functional R.C.
Equipment.

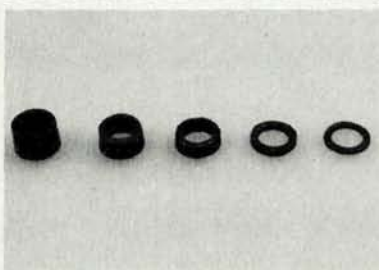
NEW FOR
1990



10L NARROW REAR END

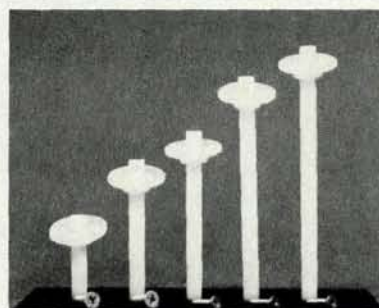
The 10L Narrow Rear End top brace has been modified to accept HOLESOT RACING PRODUCTS new SUPER COOLER 2001 heat sink. This modified top brace is now available as an after market purchase as well as in all our complete Narrow Rear End Kits. This modification allows the use of the original, light weight motor pod while still gaining the benefits of keeping your motor cool.

10L NARROW REAR END KIT . . .
(Complete) #PS01...\$49.95
10L TOP PLATE . . . (Graphite) #PS04...\$20.75



REAR AXLE SPACERS

Now available from Cheetah Racing are these fiber filled 1/4 inch inside diameter nylon rear axle spacers for all on road cars. 1/4, 3/16, 1/8, 1/16, 1/32 inch.
#PS06...\$2.00



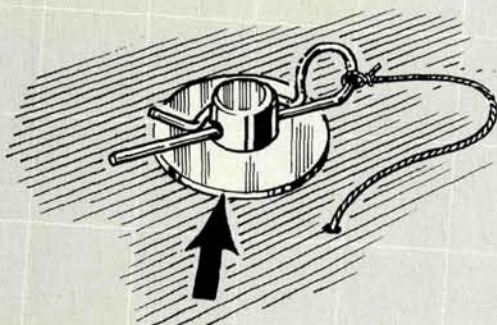
SWIVEL BODY POSTS

Strong, hollow posts with adj. body washer that swivels to assume body contour. Hwd. inc. Available in these heights: 1.5, 2.5, 3.0, 4.0, 4.5 inch.

For Latest Catalog Send: \$2.00 plus SASE, size 4" x 9"

CHEETAH RACING, 10823 Amestoy Ave., Granada Hills, CA 91344 (818) 366-2683

PIT TIPS



DECORATIVE BODY-CLIP WASHERS

Ever looked closely at the hood clips on real sports cars? There's a thin, bright washer around the hole where the post comes through the hood. Now you can have the same look for your car! My washers came off the two-pronged paper studs that some people use instead of paper clips. Drilled out, they work well and look great.

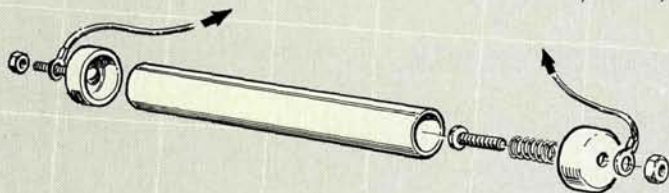
Bob Lorincz, Kelowna, British Columbia, Canada



SOLVENT-BATH PARTS HOLDER

Stainless-steel-mesh tea holders—the kind with a good latch and chain—are ideal for holding small parts, such as bearings. Suspended in a closed container of solvent, they allow dirt to fall to the bottom while keeping the parts clean. You might want to combine this idea with the bubble machine on page 24 of the March *RCRA*!

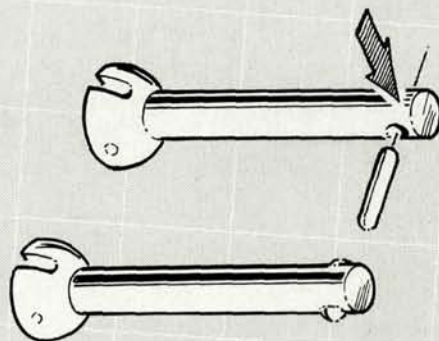
Sean Johnson, Merriam, KS



NI-CD HOLDER FOR BENCH TESTS

This holder enables you to cycle new, unsoldered Ni-Cds before building them into packs. The $\frac{3}{4}$ -inch PVC pipe and end caps are available from hardware stores, as are the nuts, spring, brass screws and electrical materials. Just slip the batteries into the holder (as you would a flashlight), snap on the end caps, and hook it up to the appropriate electrical gadget, motor, or discharge load.

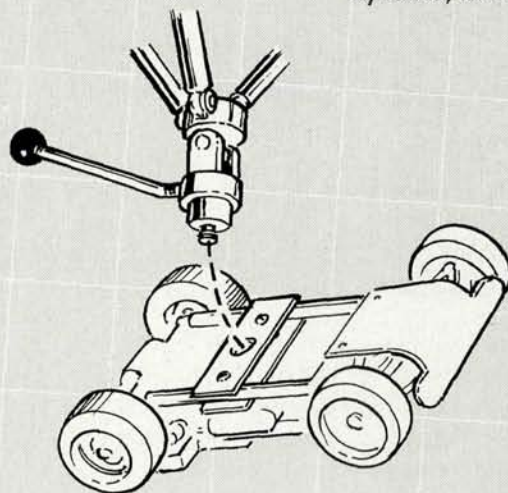
Eric Bourlet, Yelm, WA



REPLACEMENT DOGBONE DRIVE PINS

This owner wore the drive pins of his Brute down to nubs. His method of repair?—he carefully filed the nubs down flush, center-punched the spot, and drilled the appropriate size hole to accept new pins. Using a Dremel grinder, he cut music-wire pins, tapped them into the hole, and gave the shafts a couple of taps on the side where arrowed. This pinched the pins tightly in place.

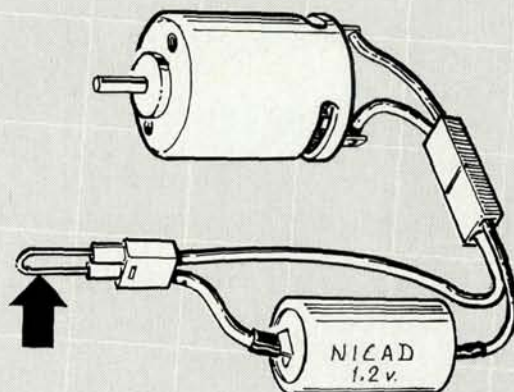
Ray Bohadel, East Brunswick, NJ



TRIPOD CAR SUPPORT

A camera tripod makes an ideal support when you work on your racer. Make a bracket to clamp to your car's frame. If you use plywood, the screw on the tripod camera base should self-thread into it. Now you'll be able to tilt your car to any angle!

Dave Hrdlicka, London, Ontario, Canada



DISCHARGING THE SEVENTH CELL

If you use a plug-in seventh cell, sometimes you might need to discharge it separately from the rest of the pack. Just plug it into a discharge load, such as the motor shown, and stick a paper clip into the open socket on the other plug to complete the circuit. The motor will safely run down the spare cell.

Pat Russell, Hadley, MA

INSIDE SCOOP



by CHRIS CHIANELLI

As directed by the Ayatollah of Radio Controlla, Commander Crash Chianelli reporting back to the faithful followers of the Grand High Exalted with pertinent information! I'm back from my latest espionage excursion with microfilm, spy shots and stolen communiques that read as follows:



Penske Passion hits Kyosho

It's only natural that Kyosho's new F1 chassis is fitted with a famous Indy car body—Penske. What else? I approve, of course. (Does anybody care if I don't) But wait! What's that other photo of the Ferrari F40? My European spy—code-named "Norwegian Pal"—reports that this body is available in Europe (also on the F1 chassis). I have no idea if we'll ever see it in the U.S.



BOLINK BASHER

I guess the last place I expected a new monster truck to pop out was at the on-road skunk works of Bolink, but here it is. There's really no info available right now, but by the look of its tires, it seems to be aimed at the off-road racing scene—with the direct drive that's visible, maybe not! Could it be that the direct drive is only on the prototype?



AMERICA LOVES THE PICKUP

Parma International was totally unprepared for the great response to its Sport Truck Series. It seems Americans can't get enough of the pickup truck—witness one of the fastest-growing forms of competition, off-road truck racing. This super-exciting racing follows the full-scale pickup preoccupation of the past few years. And what do the owners of full-scale trucks do with all those empty beds?—they transport the family dog in them.

THORR



I don't know for sure, but I've been told that Aristo has produced a blow-proof controller. That's right! According to inside Aristo-Craft

leaks, this

vs. THE TORCH new controller boasts 720 amps continuous current and 1,440 amps peak. According to its distributor, Polk's Hobby's, the new Thor SP960 is dubbed "a never-burn controller" because it uses the highest-grade Mosfet available. We'll let John "the Torch" Rist—of "Scoping Out" fame—be the judge. His torch-ure test is coming soon to a magazine near you!

ROBO RACER



My info on this new Sanwa radio, which will soon be imported by Airtronics, is unconfirmed, but a few ostensible truths have reached my ears. According to a Japanese media source, "This new radio is a blend of digital and analog technology. Just as the left-brain hemisphere controls logic and the right, feeling and emotion, the combination of analog steering and digital processing give us the latest advance in the R/C field." Would you believe the built-in 80-megabyte hard drive comes programmed with "Space Invaders" and "Missile Command" for between-heat entertainment? This advanced-technology radio will hit U.S. shores very soon.



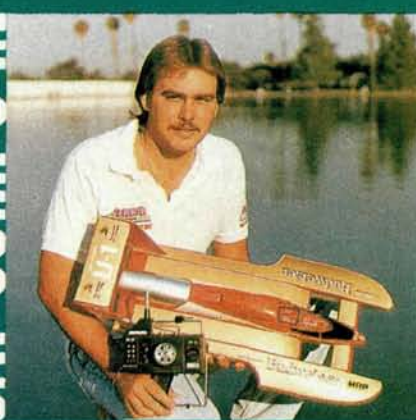
—Pirate M1, that is. This new 1/8-scale gasser (imported by OFNA of Costa Mesa, CA) resembles the Turbo Burns. The M1 was developed last year and, according to its importer, is "selling at fantastic rates overseas." Its features include: three diffs, steel gears and U-joints, full bearings, custom exhaust and centrifugal clutch with pin bearing. We'll see if the importer will get us one for testing!

"MAGIC MAN" DOES THE SUSHI-MASHER MOVE



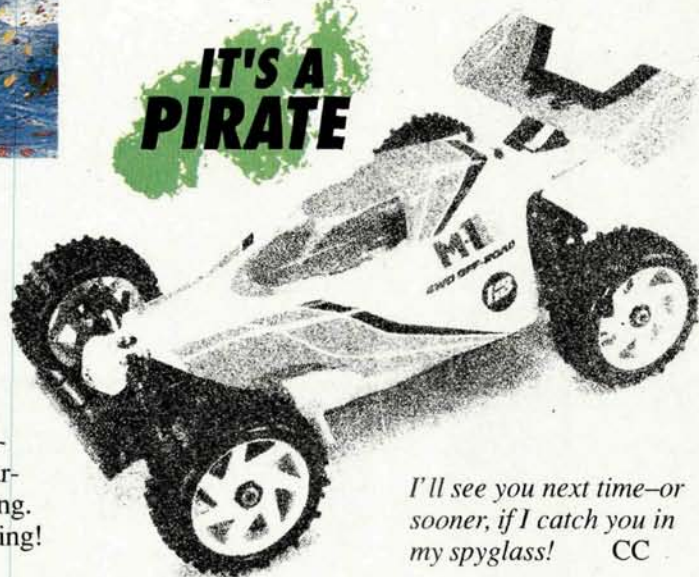
On good terms, Joel Johnson—alias "the Magic Man"—has left the Kyosho 1/10-scale off-road racing team to jump into a Schumacher. I understand he'll still be racing 1/8-scale gas for Kyosho. When Magic moves, people watch.

JAY JUMPS IN



Former World Champion Jammin' Jay Halsey—here holding an MRP electric Unlimited Hydro—has been bitten by the electric fast-boat bug. Now on the MRP race team, he competes in the Formula I Tunnel Class, driving an MRP Bud Light tunnel hull and the MRP unlimited hydro he's holding. Jay says, "I love racing these things, because not only do they offer a different type of racing excitement, but they're also self-cleaning."!

IT'S A PIRATE



I'll see you next time—or sooner, if I catch you in my spyglass! CC

READERS' RIDES

Welcome to Readers' Rides. This is our way of giving recognition to the unique, innovative—and sometimes bizarre—vehicles that our readers have created. If you want to join the growing ranks of Readers' Rides winners, send us a sharp, uncluttered, well-exposed color photo (no Polaroids, please!) of your car or truck, along with a brief description. Who knows? The Ayatollah of Radio Controlla might pick your car.

If your ride is chosen, you'll receive a one-year subscription to Car Action, or we'll extend your existing one. You'll also be eligible for the second annual "Readers' Ride Car of the Year Contest" in the fall of 1990. Send your photos to Readers' Rides, R/C Car Action Magazine, 251 Danbury Rd., Wilton, CT 06897. Be sure to include your address and phone number, in case we need to contact you!

MODIFY OR DIE!

It was a case of modify or die for Marcio Zaidan. After moving from California to Nyack, NY, he found out that off-road racetracks are rare in the Northeast. Stuck with an RC10 and no place to race but the local carpet track, he set out to make his car the ultimate carpet-burning gear jammer. He milled out the chassis to save weight, machined new front A-arms to increase the front track, limited the shock travel to improve handling, added foam tires for better grip, and eliminated the stock bellcrank steering arrangement for a direct linkage. With all these mods, a Novak ESC, Airtronics radio and Team Losi modified motor, Marcio's machine screams in and out of tight turns and responds to any command with ease!



KING COBRA

Ronnie Sipes of Nashville, TN, has created something that automotive guru Carroll Shelby never did—a Monster Cobra! Based on a Clod Buster, the Cobra Crusher is modified only slightly, with chrome rims and spiked tires. This lethal Cobra is rumored to eat Mustangs for breakfast, so watch out, pony-car fans!

RAD ROD

Charles Lampman of Fairless Hills, PA, wanted that classic look for his Frog, so he started to work on a '41 Willys body. Most hood tilts are done on polystyrene bodies, but Charles decided to do the surgery on a polycarbonate version. A hood tilt is no good if there's nothing to show, so he installed a 350 Chevy from an old Corvette model. To make the engine look more radical, he added two Holly four-barrel-carb replicas, ignition wires, fuel lines and water and heater hoses. A 540 S.D. spring motor moves the large Pro-Line rubber tires. Talk about scale detail!



YELLOW OVAL MACHINE

Rick Eyrich of Winter Haven, FL, built a winner for the go-fast, turn-left world of oval racing!

Wheel-spinning horsepower for this sharp-looking JR-X2 comes from a B&R motor that's controlled by a Novak ESC, and power is supplied by a Trinity SCR battery pack. Other modifications include a custom front bumper, nerf wings and some lightened parts to reduce the weight. This car has won numerous trophies, and it's ready to spit dirt and show its tail to anyone who tries to pass!



HONEY, I SLIMED THE MID

This Turbo Optima Mid Special Edition (sheesh, what a long name!) is owned by Marc Spiwak of Valley Stream, NY. In addition to what you usually see on a Turbo Mid, Marc added ball-bearing front steering, a Robinson Racing spur gear and a Futaba radio and speed controller. For plenty of power, he installed a Trinity Godzilla motor. The cool paint job looks as if it was hit with a double dose of slime! Just don't tear up my lawn with that slimy car!



NUTTY ON NASCAR

If Mike and Tom Tewes (of Green Bay, WI) show up at your track, you could be in trouble! The 28 Davey Allison Texaco/Havoline machine is really a McAllister racecar under a slick MRP Thunderbird body. In the background is Mike's 10L with a replica of the '88 Rick Wilson/Valvoline Pontiac body. The cars have identical Futaba Magnum Jrs. and

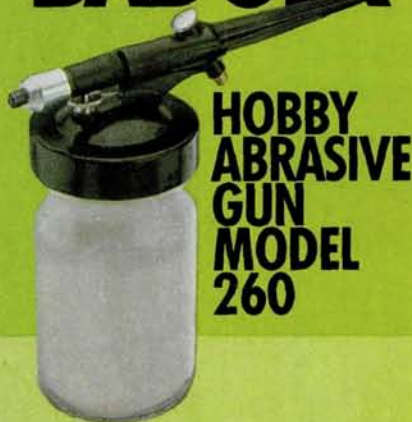
Tekin 300 ESCs, and both race in stock class. The sparks must really fly when they're dicing for the lead in the A-Main!

HITCH UP THE BOAT

Chuck and Chris Peters of Alameda, CA, are the proud creators of this boat-and-Blackfoot combo. The Blackfoot pulls the custom-built trailer, which took 70 to 80 hours to complete and has some neat features, e.g., spring-loaded bow and transom tie-downs. The boat is powered by twin Black Magic motors fed by a Hydro Zeta that harnesses the power of 20 cells! That, folks, is a lot of power going to a single propeller! The Peters win a free subscription for this great effort.



BADGER



The Badger Hobby Abrasive gun is the perfect tool for the do-it-yourselfer and the hobbyist. This abrasive gun can make most refinishing projects quicker and easier. With the Hobby Abrasive Gun, you can etch designs or cut monograms on both wood and glass. An ideal tool for prepping metal surfaces, jewelry refurbishing and much more. Curved or hard to reach areas can be cleaned with ease.

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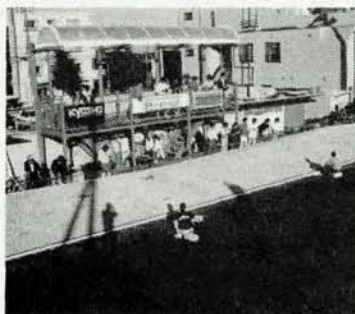
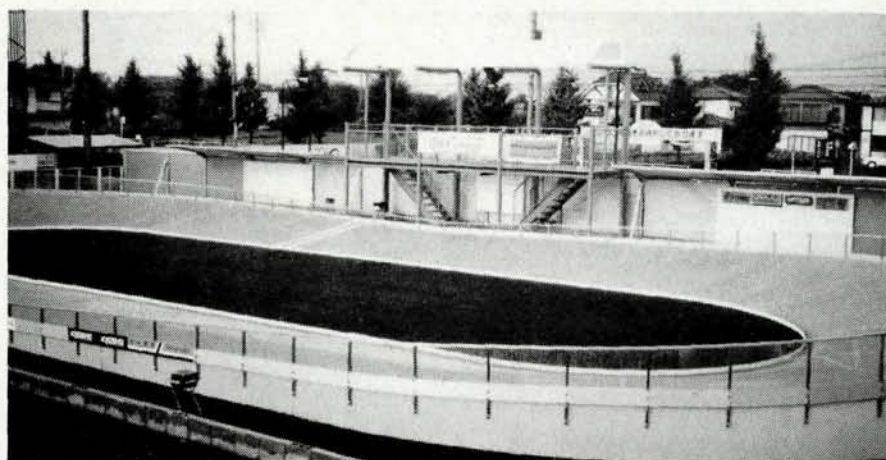
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HOT TRACKS

Welcome to "Hot Tracks." Each month, we'll choose an outstanding track to feature in this column. To qualify, send in some high-quality, black-and-white photos of your track, along with a description (approximately 500 words), and tell us why your track should be chosen. Send your entries to Hot Tracks, Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897.

SKY CIRCUIT TRACK

1945-7, HANE, HAMURAMACHI, NISHITAMAGUN, TOKYO



What's the largest banked-oval R/C track in Japan? We think it's at 1945-7, Hane, Hamuramachi, Nishitamagun, Tokyo. We don't know much about the Sky Circuit track—only that it's 113.3 feet long, 53 feet wide and has a 15-degree embankment.

Kazuhiro Ozaku, who's the president and owner of the Sky Circuit, finds American R/C oval racing "really hot and very interesting."

Kazuhiro wants to promote oval racing that's on par with that in the U.S. The All-Japan R/C Oval Race Series will include contestants from Tokyo, Yokohama and many other cities. Mr. Ozaku is quoted as saying, "It's very important to have a full line of optional parts and accessories. I plan to import American parts and kits that aren't yet available in Japan."

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TRACK REPORT



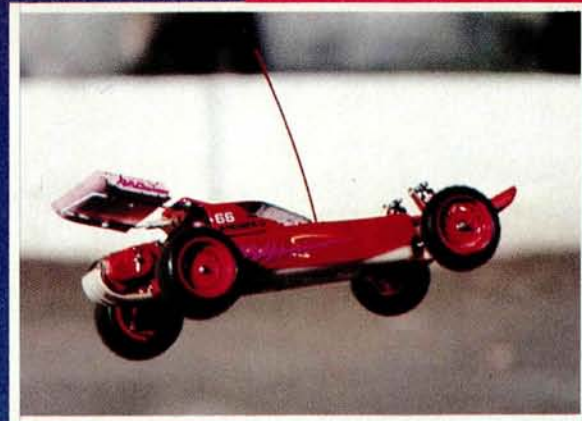
T R A X X A S

RADICATOR



PHOTOS BY STEVE POND

by LOU ANDREKO



THE KIT

The Radianator parts are securely bagged and labeled, and the assembly manual and tuning guide are well-thought-out. Included in the kit are three wrenches, an Allen key, shock oil and a tube of silicone grease. For proper assembly, you'll need Phillips screwdrivers (small and medium), needle-nose pliers, a hobby knife, side cutters and thread-locking compound. You'll also have to supply a radio system, an electronic speed controller and a motor of your choice.

Like the Bullet, the Radianator has many impressive performance features, but, to save weight, its chassis tub is made of strong ABS plastic (instead of T-6 aluminum). The tub comes



THE GREAT PEOPLE at Team Traxxas* are constantly striving to improve the quality of their 1/10-scale R/C cars and trucks, and their prices are reasonable. Don't be deceived by their cars' low prices: they have many high-performance features that are generally found on more expensive products.

Back in the June '90 issue of Car Action, I reviewed the Traxxas Bullet—a car with real racing potential—and the company has now developed a car with even more potential. Its name?—the Radianator.



Author Lou Andreko and daughter Leslie prepare the Radianator for testing.

RADICATOR

with countersunk mounting holes to make the surface smooth and aerodynamic. (This durable chassis acts as its own snag-free skid plate.) The suspension parts are of high-impact nylon, and the shock towers are the Bullet's T-6 aluminum mounts with many alignment holes, so it's very easy to make adjustments.

The fully adjustable coil-over, oil-damper shocks are also made of light ABS. They have a new, valved, piston head, which closes during shock compression and opens on shock rebound. Shock oil of various weights can be used to obtain the damping effect you want for a particular track (20WT is provided). Turnbuckles and stainless-steel ball joints are used at all suspension locations, and these hold up well under a hard workout.

In the battery compartment, a 6-cell flat pack or a 7-cell hump pack must be used. A nylon crossbar holds the battery down in the front, and the rear is wedged under the speed controller support plate. At the rear, you'll find new, lighter, independent swing arms.

Coming off the differential, there are telescopic splined drive shafts, and these are fitted with stainless-steel U-joints. The gearbox has a removable dust cover with a rubber sealing gasket, so it's easy to gain access to your motor and pinion gear to make ratio changes. The outside drive gears in the kit are 32 pitch, but you can swap these for no. 4720 48-pitch gears and then use a 48-pitch pinion. The diff gears are 48-pitch inside, so why not outside?

ASSEMBLY

This takes 2½ to 5 hours with the new planetary differential. What's a planetary differential? It's like the one used on full-size monster trucks that have 5-ton military axles. This molded diff allows a much increased gear-contact surface area, and for strength and durability, it has 48-pitch metal gears inside.

For increased durability and

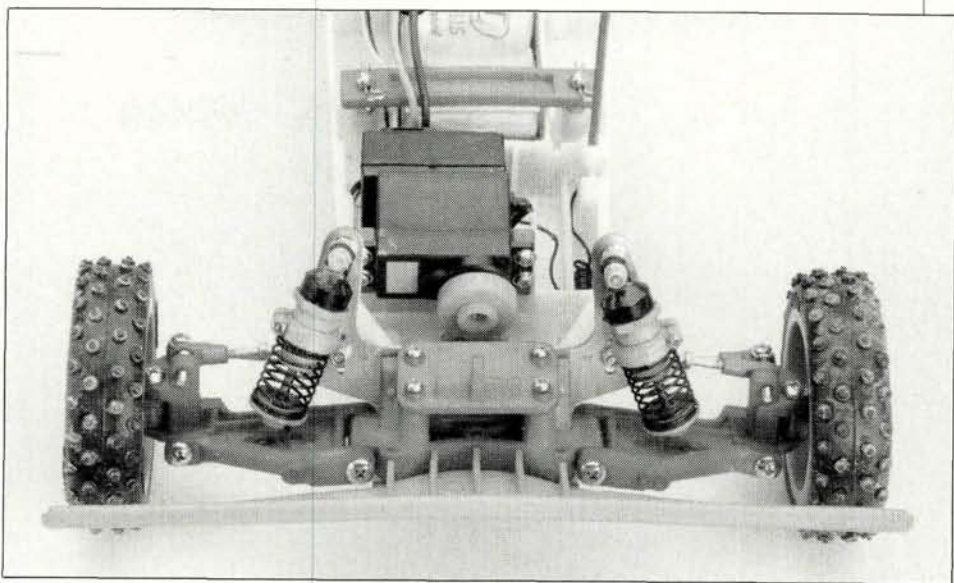
smoother running, Traxxas provides Oilite bearings, which can be upgraded to ball bearings. Don't overtighten the gearbox halves, as they'll bind the "internals" and wear them out more quickly.

Don't try to dye the diff halves, the chassis, the servo-saver, or any other parts that are particularly subject to high stress, because you'll

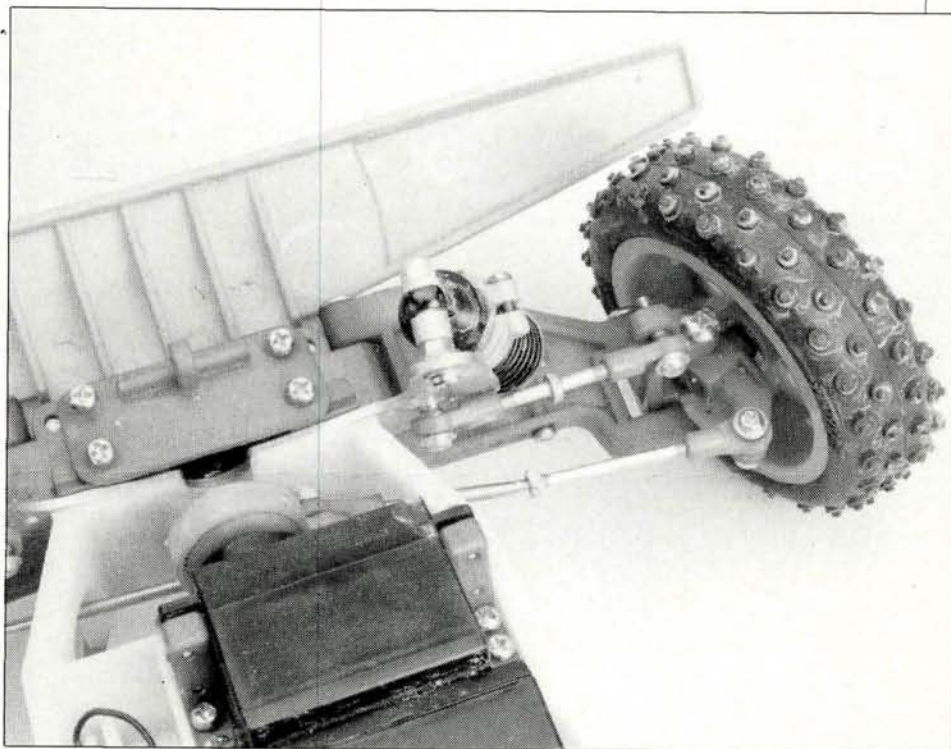
weaken them and risk breakage.

The chassis-tub front-steering mount will only accept a full-size servo like the one that comes in a Traxxas radio system. I chose a KO Propo® EX-2 Turbo system.

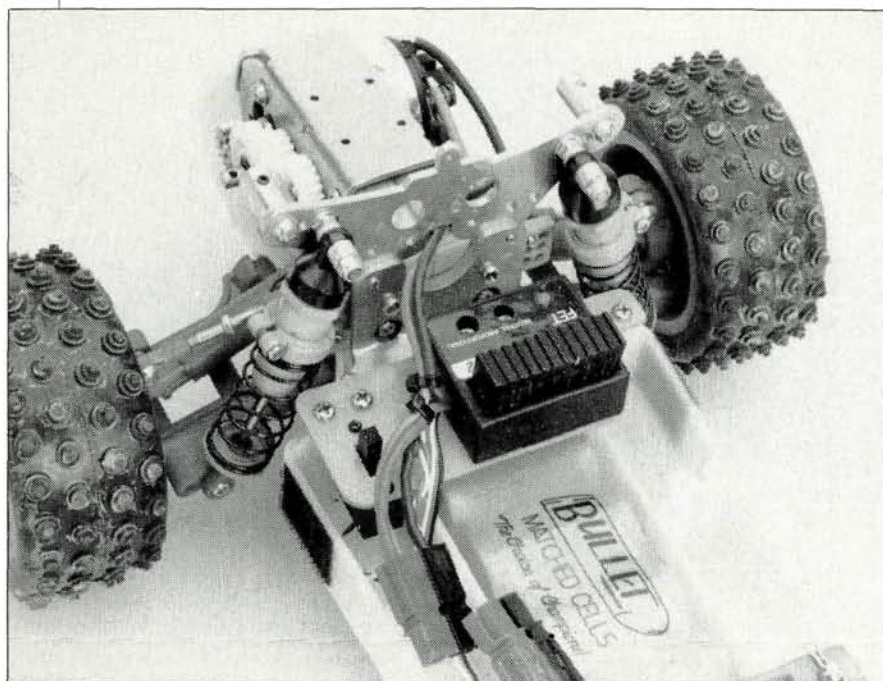
Shock assembly takes time. It's important to remember the rubber O-ring that's put onto the piston shaft outside the shock body. This



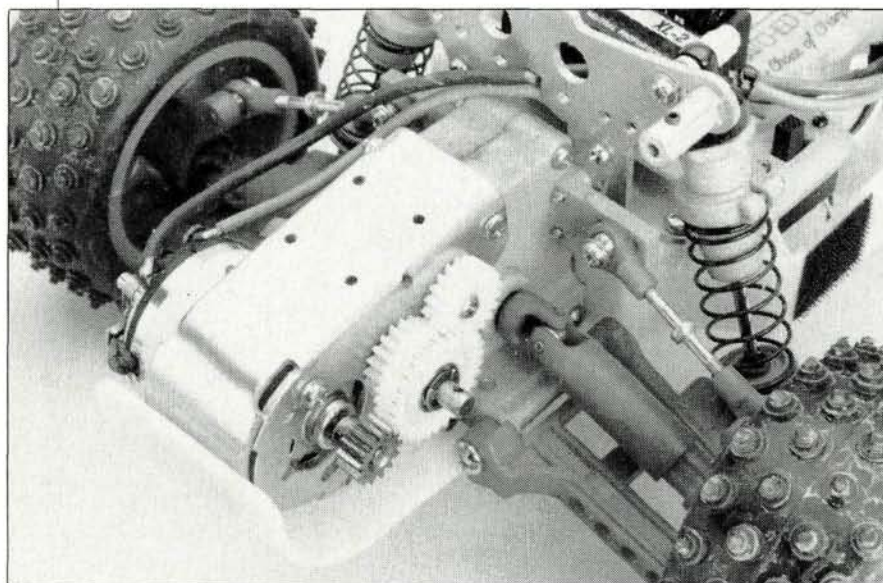
The Radianator's front oil-filled shocks are adjustable, as are the upper links. Turnbuckles are stock equipment. Stock front tires work very well on medium to hard surfaces.



Steering rods come with turnbuckles. Front bumper provides excellent protection.



Aluminum shock tower allows a variety of shock and upper link positions. Small upper plate keeps the switch and speed control out of the way.



With the cover removed, gear-mesh inspection and pinion changes can be done quickly. The author switched from the stock 32-pitch gears to 48-pitch gears.

O-ring prevents the piston-rod shaft from piercing the rubber diaphragm inside the shock body at full compression.

The front and rear swing arms are held on by screw pins over the pin and E-clip style retainers. I like this, because I've lost races when E-clips have dropped off. Building the rest of the kit is easy; just go step by step. I know that some kit builders start at the middle and end up with parts

that don't fit. (When all else fails, read the instructions!)

PERFORMANCE

With the Radicator complete and all its moving parts oiled, I was ready to roll down to the track for a test run. I built this Radicator for my 10-year-old daughter, Leslie, because it comes with hot-pink wheels, and she asked if it could be her car. Why not?

(Continued on page 86)

Type Off-road
Scale 1/10
Sug. Retail Price \$130

DIMENSIONS:

Overall Length 15.5 inches
Width 9.25 inches
Height 5 inches
Wheelbase 10.75 inches
Front Track 9.25 inches
Rear Track 9 inches

WEIGHT:

Gross (with battery) 53 ounces

BODY:

Type Off-road
Material Polycarbonate

CHASSIS:

Type Monocoque
Material ABS plastic

DRIVE TRAIN:

Primary Pinion/spur
Transmission Gear
Differential Planetary gear
Bearings/Bushings Oilite bushings

SUSPENSION:

Type (f/r) A-arm/control-link
Dampening (f/r) Oil-filled, coil-over shocks

WHEELS:

Front: Type One-piece nylon
Dimensions (DxW) 2.25x.75 inches
Rear: Type One-piece nylon
Dimensions (DxW) 2.25x 1.5 inches

TIRES:

Front/Rear Pin-spikes

ELECTRICS:

Motor *
Battery 6-cell flat or 7-cell hump pack*
Speed Controller *

OPTIONS AS TESTED:

KO Propo EX-II Turbo radio system; Traxxas XL-2 electronic speed controller; Bullet 6-cell, SCR, matched, flat pack; Speedworks Joel Johnson stock motor.

COMMENTS:

The Radicator has many of the features you'll find on more expensive cars in its class. It's well-built, and adjustments are easy to make. It's lighter than its older brother (the Bullet) and fast (an A-Main contender). Changing the outside gears (from 32 to 48 pitch) will improve performance.

* not included

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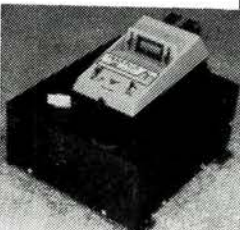
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LETTERS

(Continued from page 12)

OK, did everybody at the industry and dealer end hear what this perceptive guy had to say? Some are doing what they can, but we need more. The hand with the food in it has many bloody teeth marks, my friends.

CC



TRUCK TRAUMA

There has been some controversy over racing trucks and "play-type" monster trucks. Except for "play-type" trucks, it's pretty well defined which cars fit into which category. I hope my letter will cause fewer people to hate me than Robert O'Mea's somewhat negative one did. He should be criticized because only "hard-core" racers feel invaded with these "dinosaurs" (as Robert put it) racing on the same track.

Having "fun" trucks around is fine. I'm no fun-spoiler, and I'd never call these trucks junk. I don't think sportsmen should have to buy an expensive, high-tech, state-of-the-art truck (e.g., the JR-X2), if they just want to have a good time in the park. I also hope that people who buy trucks know what they're getting and that they don't buy a Blackfoot if they want to race competitively. As Robert said, it's heart-breaking for a kid to find out his car has no chance of winning a race.

Creating yet another class for us off-roaders to deal with isn't worthwhile. We spend enough time at the track already. If a person with a non-racing truck wants to

race, then let 'em; however, I think they should have to race against all other monster trucks using modern technology.

I know that these trucks weren't designed for racing. They use technology that isn't up to par in today's racing scene so they shouldn't be compared with conversions, but if people out there want to race their Yugos against Porsches, then let 'em. Creating a separate class for these things seems insane to me. For one, a new set of rules would have to be made that states which cars aren't fast. When was the last time you saw cars with out-of-date technology compete in their own race on ESPN?

Making a class for trucks that are simply not as good as what today's technology can deliver wouldn't be of any use to the people who have changed with the times. There was a time when Blackfoots and Big Bears were kings of the hill, but times have changed, and today's racing trucks are what rule the track. Big Bosses and Mud Blasters are great for car crushing and running in your backyard, and if their owners want to race them, that's fine, but they shouldn't try to start a "production-truck revolution."

Remember, true monster trucks were made for things other than racing, and you can only stretch them so far. After that, if you're not happy, get a racing truck! No matter how much you modify your "Super Blackfoot," the conversion truck will always be better on the track. That's not my fault; that's just the way it is. Anyone who wants to yell and scream at me about my opinions in a rebuttal letter is welcome to do so.

ROB PEGLER

I'm not going to respond to this one, yet. I really want to hear from you readers first. This is a subject that needs quick and decisive attention. Should we divide up the trucks that are currently available into fair classes (e.g., the Blackfoots, Big Bears, JR-X2s and TRX-Ts), and, if so, where should we draw the line?

CC

GET OUT OF TOWN, PUNK!

I was going through the letters in the January '90 issue, and I laughed at how many people actually think they know more than you. Ha! Isn't that a myth! Then came something that really upset me. I didn't think anyone could be so ignorant until I saw Bryan Balak's letter. Sure, he had some good questions, but I couldn't believe what he said about "punks who tinker with stock motors." How could he possibly say, "Get out of our hobby" to anyone? Come on now! Where do almost all racers start? Stock! What surprised me the most was that Chris Chianelli didn't even give one of his great comebacks to stupid comments. Let's not forget the little guys! They're the people who got it started!

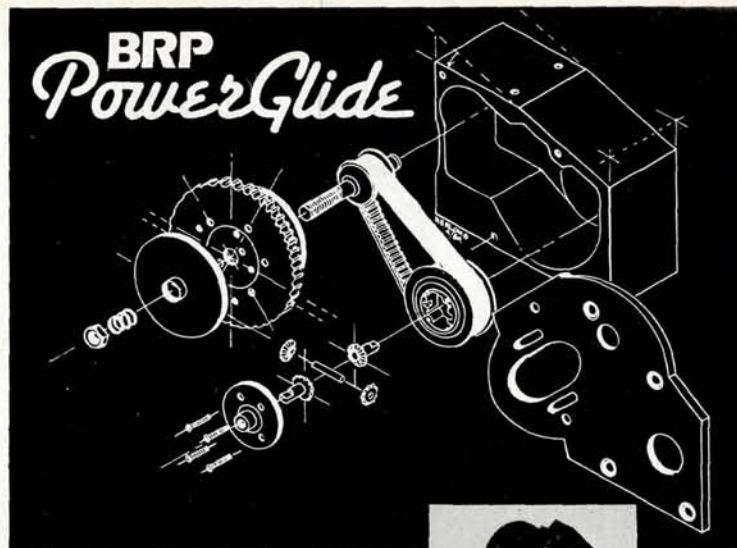
SCOT HULL
Fort Wayne, IN

Whoa, Scot! Calm yourself; lay down the weapon. Believe me, if I thought Bryan deserved one of my, as you put it, great comebacks (thank you); he'd have gotten one. Bryan wants to preserve stock, not throw people out of it. He was simply protesting against the cheater worms who illegally crank timing (among other things) on stock motors and screw up their longevity. This drives up the cost and generally louses up the fairness of the class. I must concur with Bryan; let them get out of stock if they can't compete fairly. I hope that things like the new tamper-proof Trinity motor can stop some of this and help save the stock class.

CC

WHERE TO WRITE TO US

If you're writing to us (and we'd love to hear from you), please be sure to address your letters to "Letters," *Radio Control Car Action*, 251 Danbury Road, Wilton, CT 06897. Only subscription orders and inquiries are handled by our Customer Service Department in Mount Morris, IL; other mail addressed there must be forwarded to us in Connecticut, and this leads to long delays.



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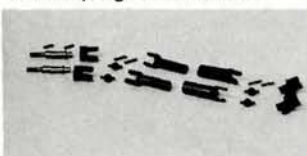
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SCOPING OUT

by JOHN RIST

NOVAK NESC-T4

Does your R/C car act more like a Model T Ford than a lean, mean racing machine? If so, you're probably still using the old mechanical speed controller. A good electronic speed controller will make a big difference to your car's performance—especially if you run on a roadcourse that has a combination of slow, tricky, tight turns and hammering high-speed straights.

Christmas comes 12 times a year at my house, because every month, a new goody arrives for me to play with! This month's treasure?—Novak's NESC-T4 speed controller, which has the following features:

- seven FETs (six forward and one for brakes)
- a case that's partially sealed against dust and moisture
- a complete set of motor and battery connectors

THE "SCOPING OUT" LAB

John Rist's lab consists of:

- an oscilloscope
- a digital voltmeter
- a resistor load bank
- a 6V 30-amp electricity supply
- a Pit Stop Radio servo/speed controller tester.

The oscilloscope is used to monitor the controller's output and to guarantee that it's fully on.

The digital voltmeter takes all the voltage-drop readings and verifies the reading on the current meter.

The resistor load bank consists of 40, 12-ohm, 5-watt power resistors, which can be switched on and off one at a time to vary the load between .6 amps and 20 amps.

In series with the resistors is a 25-amp Simpson current meter and a 1-percent .01-ohm resistor. By measuring the voltage drop across this resistor, the current-meter's reading can be double-checked. Of course, the lab power supply provides the test current.



With Novak quality and an extremely accurate LED readout for making adjustments, the Tempfet NESC-T4 is one of the best, low-cost, entry-level controllers.

- a built-in pulse checker
- burnout protection provided by temperature-sensitive FETs.

The NESC-T4 can handle four to 10 cells, and it comes complete with these accessories: heat sinks, adjustment-hole plugs, motor-filter capacitors (three small, one large), an instruction book, a screwdriver, a flashy decal sheet and servo-mounting tape.

When evaluating a speed controller (SC), I first remove it from the case and look for anything that might hinder its performance or make it unreliable. The NESC-T4's bright orange case is held together by four screws, so disassembly and reassembly are a snap. There's a rubber gasket over the FETs and an O-ring between the case halves. These don't make the controller waterproof, but they should help to keep dirt and grime out of its innards. The printed-circuit board, the electronic components and all the solder joints looked topnotch.

I like the size of the adjustment pots on Novak SCs. They're large, so they can be adjusted with a no. 0 Phillips

screwdriver. (The supplied screwdriver also worked well.) Like all the Novak products I've worked with, the NESC-T4 is well-designed and well-built.

LAB TESTS

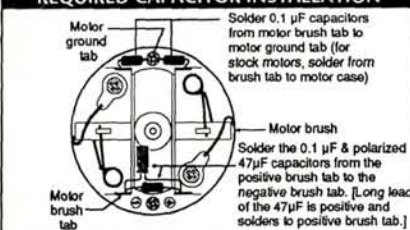
Next, I headed to the "Scoping Out" lab to see if the Novak NESC-T4 had what it takes in the power-delivery department. Having worked with many SCs, I'm always tempted to just plug in a new model and run it without reading the directions. The NESC-T4's two pots and one LED adjustment looked conventional, but Novak's excellent instruction book revealed that the LED works a little differently from those on most controllers. It comes on very brightly for neutral, dims as you advance the throttle, and snaps to full-bright again when you hit full throttle. This full-bright for neutral and full bore makes it easy to hit these two points right on the nose without having to use an oscilloscope or a voltmeter.

I set up the controller by using the built-in LED, and I double-checked

WARNING!! YOU MUST HAVE FOUR (4) CAPACITORS ON YOUR MOTOR!!

Motors can generate voltage spikes which can cause **SERIOUS DAMAGE** to the MOSFETs in speed controls. Failure to install the **THREE (3) 0.1µF & ONE (1) 47µF capacitors** will **LOWER SYSTEM PERFORMANCE**, may cause ESC damage, and will void your ESC Warranty!!

REQUIRED CAPACITOR INSTALLATION



NOVAK ELECTRONICS, INC. • 128-C East Dyer Rd., Santa Ana, CA 92707

To protect the FETs from harmful back EMF, it's very important to follow the supplied capacitor-placement instructions carefully. See text.

the settings with my oscilloscope. The LED was "right on." The first thing I measure is the "on" resistance, which is important because it determines how much power an SC wastes, and it indicates whether it will run hot when you put the hammer down. To obtain the "on" resistance, I wire the SC to a resistor load bank and set the current to a hefty 12 amps. Then I adjust the neutral and full-on pots for normal operation and use the oscilloscope to verify that the full-on setpoint (as indicated by the built-in LED) is correct.

Using the digital voltmeter, I measure first the input voltage and then the output voltage. The difference between the two is the voltage loss across the SC. I then calculate the resistance by using the formula $R=V/I$, (resistance = voltage divided by current). For comparison, I always take the voltage-drop reading for two setups: first, with full-length wires and the factory-installed connectors, and second, at the 2-inch point on the wires.

The voltage-drop measurement taken from the motor connector to the battery connector produced a reading of .2 volt, which gives a calculated re-

sistance of .0166 ohm. The voltage drop at the 2-inch point on the battery and motor wires was .09 volt, or a resistance of .0075 ohm. Novak claims a resistance of 0.0045 ohm.

As usual, the printed-circuit board, wires and solder joints account for a major part of an SC's voltage drop, and all manufacturers list just the resistance of the FETs. Novak rates its NESC-T4 as an entry-level SC. The only difference I found between this controller and a top-of-the-line 7-FET one like Novak's NESC-T1 is that the NESC-T4 has battery and motor connectors installed and that its "on" resistance is a little higher! Its quality of construction and the ease and accuracy with which you can make adjustments are all excellent.

Next, I ran a test to determine whether the FETs needed the heat sink to survive. I cranked the resistor load bank wide open and let the controller cook for 15 minutes without a heat sink or a cooling fan. The current meter indicated that the controller was handling 18 amps. After 15 minutes, the FETs were too hot to touch. The NESC-T4 was still operating normally, but I agree with Novak's recommendation: always use the supplied heat sink and position the controller so that it gets plenty of cooling air.

Novak advertises that its SCs have Tempfets which, when overheated, will automatically shut down without being damaged. This eliminates the need for a power-robbing fuse. To verify this claim, I placed my monster-wire shorting clip across the NESC-T4's motor leads with the pedal to the metal. The NESC-T4 handled the 40 amps that my bench power supply is capable of putting out for 2 minutes, and then it simply shut off. All the wiring and the controller were smoking. I let the unit cool for 5 minutes, and when I turned it back on, it functioned normally. I concluded that the NESC-T4 could survive burnt-out

NOVAK

NESC-T4

DIMENSIONS:

Height	0.75 inch
Width	1.33 inches
Length	1.68 inches
Weight (w/wires)	1.74 ounces

TUNING:

Access to Controls	Excellent
Ease of Adjustment	Good

PRICE:

Suggested Retail	\$115
Warranty	90 days

ELECTRICAL:

(Manufacturer's Specs)

Max. Voltage	10.25 volts
Min. Voltage	5 volts
Max. Current	N/A
Continuous Current	176 amps
Resistance	0.0045 ohm

TEST PARAMETERS:

Voltage	6 volts
Current	12 amps
Voltage Drop, wires & connectors	0.2 volt
Voltage Drop, 2-inch wire	0.09 volt
Resistance to end of wires*	0.0166 ohm
Resistance, 2-inch wire*	0.0075 ohm
BEC Output, 6-cell battery	5.98 volts

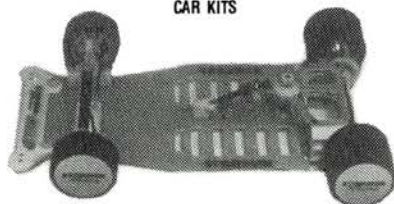
*Calculated Resistance = Voltage Drop/Current

COMMENTS:

This is a really good entry-level racing-style speed controller. The NESC-T4 is Novak's lowest-priced model, but it has the same solid construction as the company's more expensive speed controllers. I did experience some overheating because of the higher-resistance FETs used in the T4. Be sure that you have all the recommended capacitors installed across the motor, and *always use the heat sink!* It helps to dissipate the heat from the six FETs, and this allows the Tempfet to detect the heat and protect the controller. Novak's adjustment pots and LED are the most accurate of any that I've tested, and this makes setup a snap. Throttle response is very smooth, and the brakes work well.

Top 100

CAR KITS



Corally SP10.....	\$229.95
Corally SP12.....	189.95
RC10L, Graphite.....	133.95
RC10L, Fiberglass.....	96.95
RC12L, Graphite.....	109.95
LYNXII, Graphite.....	166.95
LYNX Sport.....	129.95
JRX2.....	164.95
JRXT.....	184.95
Proformance, (JRX2).....	98.95
RC10, Graphite w/BB.....	178.95
RC10, Championship w/BB.....	159.95
RC10, Championship w/Bush.....	126.95
PARMA, Days of Thunder.....	78.95
PARMA, California Sport.....	69.95
NISSAN King Cab.....	169.95

BATTERIES

BONZAI, "Regional", 6 Cell E.....	\$54.00
BONZAI, "Regional", 7 Cell E.....	63.00
BONZAI, "Nats", 6 Cell R.....	68.00
TRINITY "Pushed" 6 Cell R.....	49.95
TRINITY "Pushed" 6 Cell E.....	54.00
TRINITY "Pushed" 7 Cell E.....	63.00
SANYO 900 MAH SCRS.....	ea. 3.95
SANYO 50 MAH Cells.....	ea. 3.50

CHARGERS

TEKIN BC 210 Reflex.....	\$119.95
TEKIN 100L (Linear).....	65.95
TEKIN BC 870.....	59.95
NOVAK 4200.....	49.95
NOVAK 4300.....	99.95
PROTECH 706.....	75.95
PROTECH 707.....	54.95

SPEED CONTROLS

NOVAK - 410 - MIC.....	\$108.95
NOVAK - 410 - MXC.....	118.95
NOVAK - 828 - HV.....	118.95
NOVAK - T-4.....	64.95
TEKIN - 700 - w/Tork Adj.....	118.95
TEKIN - 610 - w/Tork Adj.....	89.95
TEKIN - 310 - w/Tork Adj.....	65.95
TEKIN - ERM80 - Reverse Module.....	39.95
Dialed 100 Amp w/Reverse.....	59.95

MOTORS

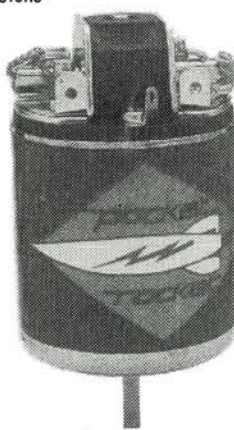
Pocket Rocket Stock, 3000.....	\$14.95
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TWISTER

1705 Fast Eddies (12D).....	43.95
2002 Annihilator (11D).....	43.95
2003 Carolina Mtn. (13T).....	43.95
701 Eriks Express (14T).....	44.95
1001 Hurricane (15D).....	44.95
1002 Terminator (17D).....	43.95
2005 Clydesdale (14T).....	43.95
2005R Clydesdale (R) (14T).....	43.95

PEAK PERFORMANCE

PP35 Sprint (17D).....	43.95
PP30 4 Wheel (18D).....	43.95
PP45 Animal (16D).....	43.95
PP55 Wild Thing (14D).....	43.95
PP90 Rickspick (13T).....	43.95
PP60 The Beast (12D).....	43.95



TRINITY

0670 Triad (13T).....	35.95
0669 Triad (12T).....	35.95
0444 SPW Tony Neisinger (14T).....	23.95
1702 Top Fuel (11T).....	43.95
0008 SPW Monster Mash (16T).....	22.95
0009 SPW Monster Mash (16T) Rev.....	22.95
2030 Matched Madness.....	54.95

ASTROFLIGHT

7510 Top Fuel.....	59.95
7505 Pull Master.....	54.95

ACCESSORIES

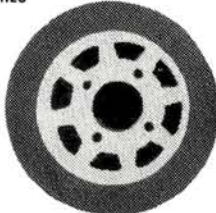
LYNX II Offset Chassis.....	
TR 5202.....	\$29.95
TR 5460 LYNX II Pro.....	
Shock Kit.....	12.95
TR 5100 LYNX II Magnesium Split Crossbar.....	19.95
BDS 6755 10L Magnesium Hubs.....	34.95
TA 1001 10L Titanium Pro Axle.....	24.95
CK 7113 10L Sway Bar Kit.....	15.25
CK 6118 10L Graphite Lower Plate.....	14.00
CK 7112 Center Point Steering Kit.....	5.75
CH PS01 10L Narrow Rear End Kit.....	45.95
PL 4518 10L Titanium Rear Pod.....	29.95
AND 3480 RC10 Molded Graphite Chassis.....	39.95
TRC 1451 Capped Tire Spray Cleaner.....	5.95
ANL RC10 Lethal Weapon Trans.....	84.95
RR 500 Robinson "Foot Diff" w/Axles.....	54.95
1-SPI BR MIP RC10 Ball Race Tranny.....	84.95
1-SPI GD MIP RC10 Gear Diff Tranny.....	79.95
San 50 50 MAH 5 Cell Receiver Packs.....	19.95
San 40 50 MAH 4 Cell Receiver Packs.....	17.95

CLOD STUFF

APG All Steel Gear Set.....	\$89.95
SC15 Anodized Aluminum Chassis.....	99.95
ES23 Al. Fr. Tube Bumper.....	24.95
ES24 Al. Twin Tube RR. Bumper.....	19.95
ES17 Wheelie Bar.....	22.95
2000 Stormer 4 to 1 Gear Boxes (Pair).....	99.95

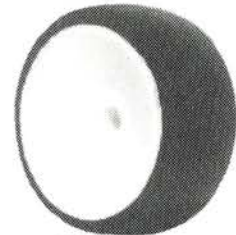
TIRES

T/M RADIALS	
1490 Front Red (Soft).....	\$11.00
1491 Front Gold (Med).....	11.00
1492 Front Silver (Firm).....	11.00
1590 Rear Red (Soft).....	12.00
1591 Rear Gold (Med).....	12.00
1592 Rear Silver (Firm).....	12.00
New T/M Stagger Tires, 1/8" Smaller in Diameter	
Front Stagger Tires (Red, Gold, Silver).....	12.00
Rear Stagger Tires (Red, Gold, Silver).....	13.00



CKW CAPPED TIRES

0095 Fronts 1/10 (Soft).....	17.95
0099 Fronts 1/10 (Firm).....	17.95
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1000 Rears 1/10 (Firm).....	18.95
0090 Rears RC 10's.....	19.95
0092 Dominator Caps.....	19.95



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1500 Fronts 1/10.....	18.95
1501 Rears 1/10.....	19.95
AJ'S BLACKDOTS (UFRA)	
9836 Fronts 1/10.....	18.95
9837 Rears 1/10.....	19.95
0854 Fronts 1/12.....	12.95
0864 Rears 1/12.....	13.95
DELTA GOLDS (Pairs)	
19817 Fronts 1/10.....	14.95
19815 Rears 1/10.....	17.95
19847 Fronts 1/12.....	13.95
19845 Rears 1/12.....	14.95



SCOPING OUT

motors, jammed gears and shorted wires. This controller is truly bullet-proof.

CAR TESTS

The lab tests were finished, and it was time to mount the NESC-T4 in my trusty Turbo Ultima and head for the street for some wild driving. In other words, it was time to have fun! The instruction book provides adequate instructions for installing the NESC-T4. A detailed picture of the controller connected to the battery, receiver and motor is not included, however, and such a diagram would be helpful for first-time users.

All the connectors were already installed, so the controller was easy to put into my car, and I made sure that the neutral and full-speed controls were set properly. As I mentioned, the action of the built-in LED is very precise, and this makes it very easy to set the Novak's NESC-T4 end points "right on the money." The large adjustment pots are also a pleasure to work with. My no. 0 shirt-pocket Phillips screwdriver fit them, and its larger handle permitted more precise setting. One caution: if you use a larger screwdriver, be careful not to force the pots past the end of their travel. If you do, Novak will be glad to fix the damage—for a price.

I charged four 6-cell packs, installed my on-road foam tires and headed for the dead-end street in front of my house. It was immediately evident that this was a top-quality SC built by Novak. The acceleration was blinding, and the throttle response was very smooth. The only problem?—the controller seemed to lack brakes. I checked all my settings to make sure I didn't have the brakes dialed-out, but I couldn't find them.

I removed the controller and sent it to Novak's repair center. A follow-up call verified that the controller had a blown braking FET. Novak replaced it and returned the controller post-haste. (The company has a very good repair center.) In the box with the repaired controller, I found a bright orange sticker with a big headline, "WARNING!! You must have four (4) capacitors on your motor!!"

At this point, I realized that I was probably responsible for the failed brakes. In my haste to have fun, I had installed only two of the .1-microfarad

(Continued on page 86)

STORMER HOBBIES

P.O. Box 126 - Glasgow, MT. 59230

Ordering Information: C.O.D. Add \$3.50

Shipping Handling: \$4.95 (except Power Supplies)

Mastercard
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Orders Only:

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KYOSHO

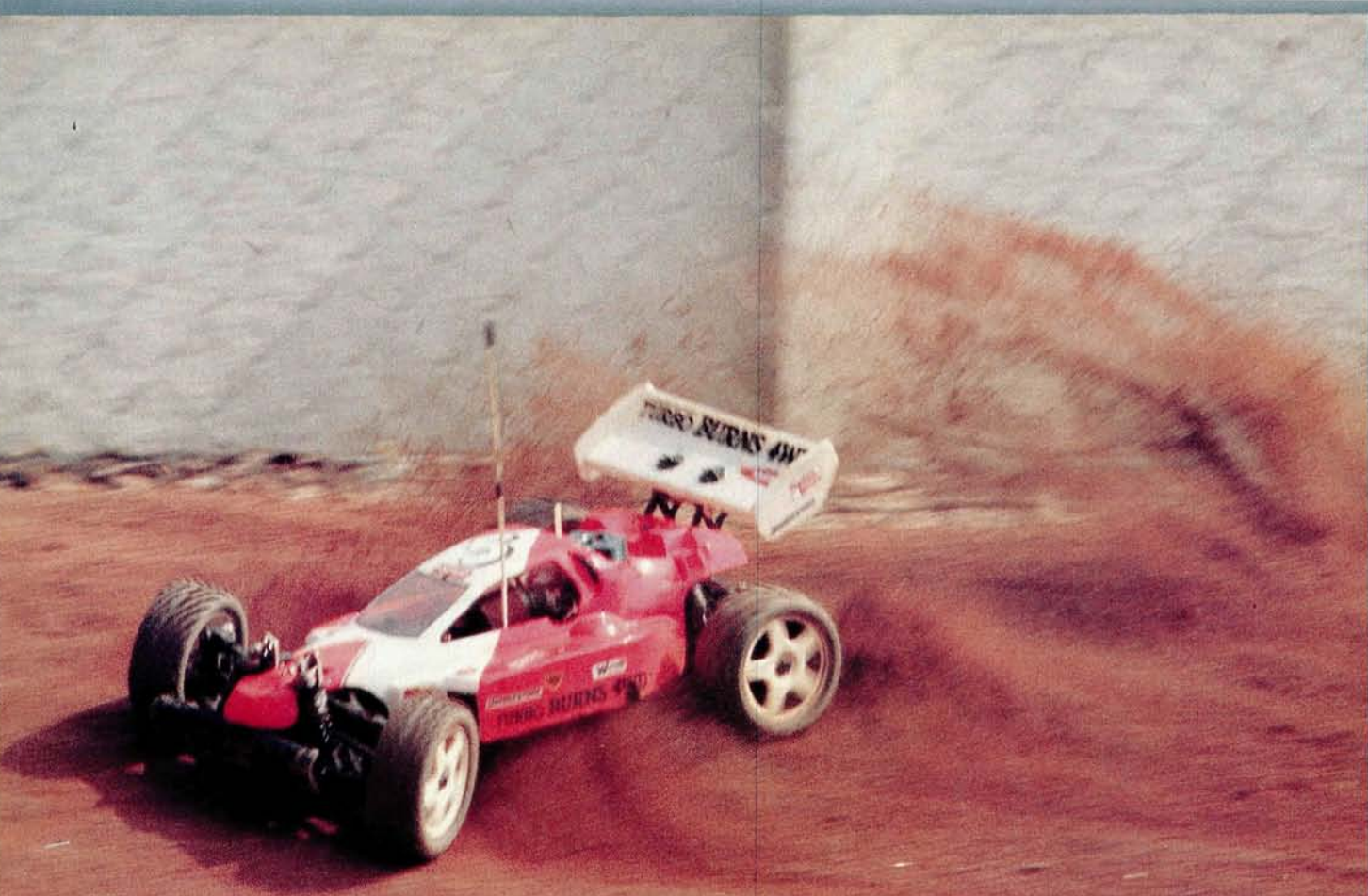
TURBO



PHOTOS BY STEVE POND

burns

by STEVE POND



FOR SOME TIME, there have been many myths about gas-powered racing: the cars are too expensive; too difficult to learn how to run; unreliable; the list goes on.... Perhaps the reason for this is that few R/C racers know enough about gas cars, but those who do know that the truth is very different. Just as you need a lot of technical knowledge to compete successfully with 1/10-scale off-road electric cars, you need it for 1/8-scale off-road gas cars, but you need to know different things—

not more difficult; just different.

In its latest attempts to put 1/8-scale racing

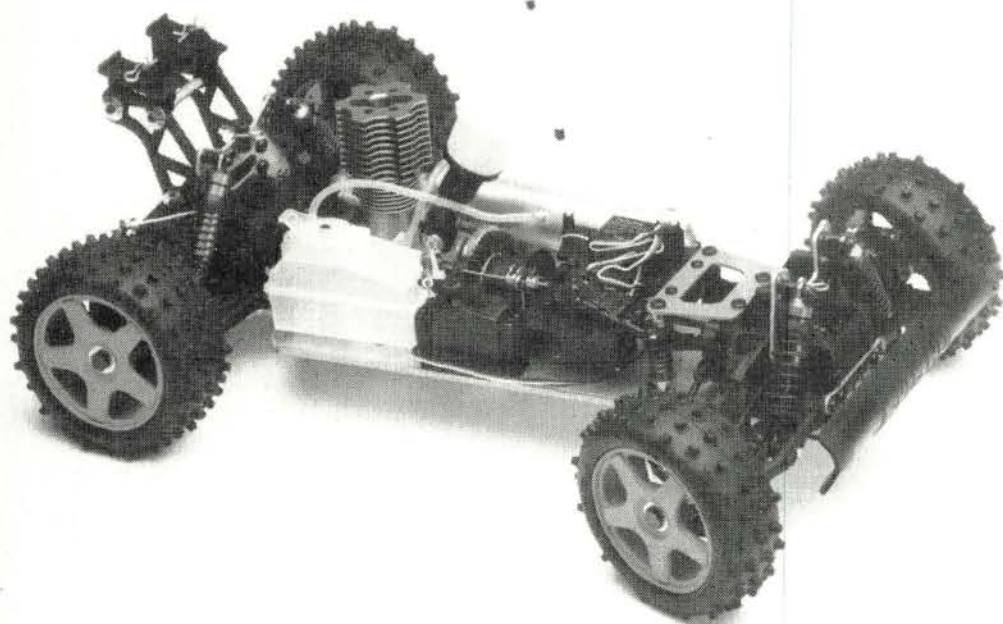
ones) that were designed to make the Turbo Burns competitive right out of the box.

methanol menace!

back on the map—primarily in the off-road category—Kyosho* has introduced a car that's much more advanced than previous 1/8-scale off-road cars.

The Turbo Burns is the latest version of Kyosho's original Burns. The Turbo has many of the same features, but there are several subtle changes (and some obvious





The Turbo Burns' features include: a plate aluminum chassis; front, center and rear differentials; a torque splitter on the center diff; a single disc brake; glass-filled nylon suspension components; 4W independent suspension with lower A-arms and adjustable upper links; aluminum, oil-filled, coil-over shocks; a complete set of ball bearings; a muffler; and a polycarbonate body and wing.

With the Turbo Burns, there should be a sort of "Surgeon General's Warning" that tells builders about the potential consequences of not using a thread-locking compound on an 1/8-scale gas-powered car. I've always recommended its use on 1/10-scale cars, but it's *vital* on the Turbo Burns. Thread-locking compound must be applied to any screw that's threaded into metal. If you don't use it, the vibration and tremendous horsepower produced by the engine will quickly loosen any screws.

ASSEMBLY

Start by piecing together the shocks, which, although they

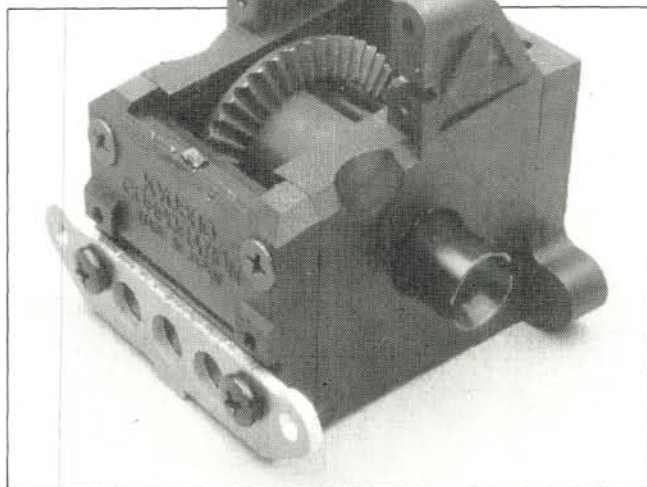
look like the standard Kyosho Golds, are substantially larger to provide the extra damping and suspension travel required. A good starting point for the shock oil is 40WT in the front and 20WT in the rear. I use Team Losi* Synthetic Shock Oil, and since shock oils vary, if you choose another brand, you may have to experiment. This combination worked well for me.

Because the Burns is a 4WD car and frequently nose-dives off small jumps, I installed a pair of heavy springs on the front end to try to keep the nose up.

Next: the front and rear diffs and the suspension components. The diffs are already assembled, so that saves you an hour's work. They're installed in the housings, so you might get the impression that they're ready to install on the chassis, but the instruction manual tells you that there's more to do before you cinch them down.

Both the front and the rear differentials are driven by a pinion gear that engages the ring gears on the diffs. As is,

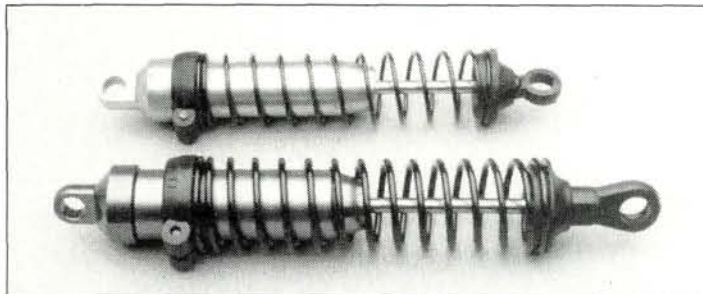
the car would run reasonably well for a while, but for the best performance, ensure that the mesh between the pinion and ring gears is perfect. Shims for spacing the diff to the left or right, or for adjusting the pinion front to back are included. I had to put three shims on the diff to



move the ring gear towards the pinion. This not only improves the gear mesh, but it also prevents the diff from moving from side to side and changing while the car is running. For a better mesh,

The Turbo Burns differentials come assembled in the housings, but to obtain a proper gear mesh, they must be disassembled and shimmed.

Although the Turbo Burns shocks look like the Kyosho Gold shocks, they're considerably larger to provide the necessary additional damping.

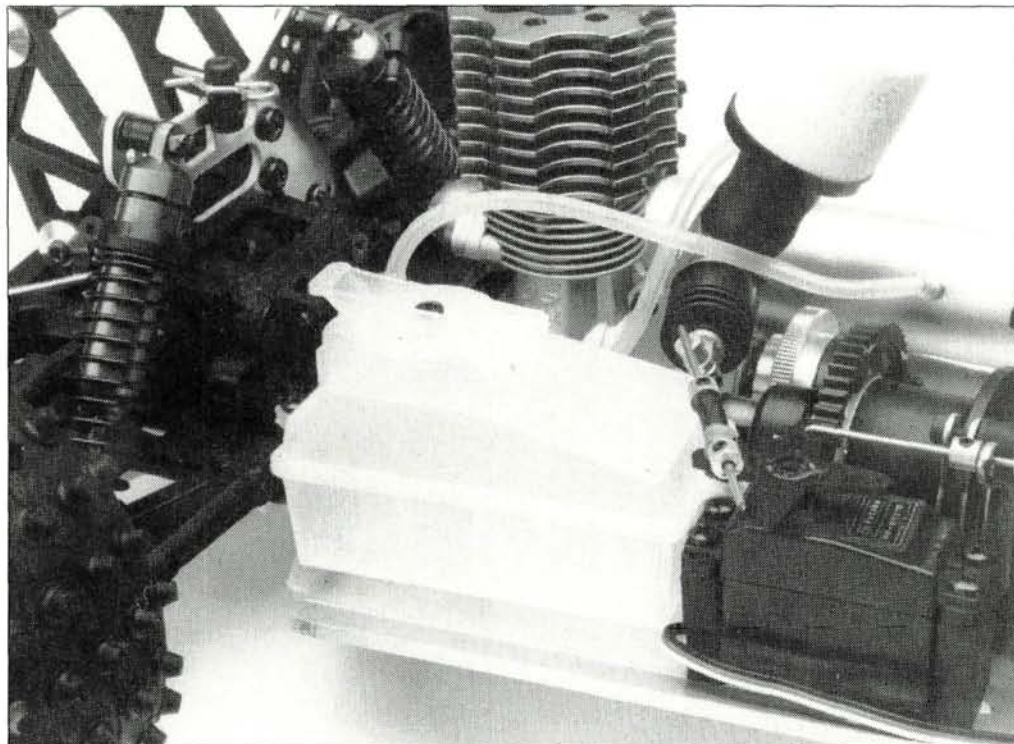


you might also have to put one shim behind the pinion in the rear diff to move it closer to the ring gear. The spacing will be different with each kit, so don't do exactly as I did, but spend a little extra time on the diffs.

When you've attached the rear diff, install the suspension components on the chassis, to which you should also pay close attention. Next, attach the front diff to the

center diff and the front and rear diffs. These are very important because they prevent the dogbones from rattling around in the drive cups. Because of the tremendous engine vibration, the absence of these O-rings will accelerate dogbone wear, and you'll have to replace them after a few hours of run time—so install them!

My chosen engine is the one you see in pictures all



During races, a quick-fill fuel tank allows 2- to 3-second pit stops for refueling.

chassis, and follow this with the center diff. The center diff is connected to the front and rear diff by means of a pair of dogbone drive shafts. Put the supplied O-rings into the drive cups of both the

time—the one with the sharp-looking, blue-anodized cylinder head. It's the O.S.* EX-B engine, which the Turbo Burns is designed to take. In the past, O.S. engines often took a back seat

to the Nova Rossi, Mondial and Rex engines, but this one was chosen by Joel Johnson and Gary Kyes (one of the gurus of gas power) for the 1/8-scale World Championships.

O.S. has put some heavy R&D into its buggy engines, and this has resulted in some respectable horsepower. The EX-B bolts directly onto the Turbo Burns' engine mounts. Prior to installation, attach the flywheel and clutch assembly to the engine. First, slip a tapered collar, a drive washer and then the flywheel onto the crank, and hold these components in place by tightening down the pilot shaft. With the clutch shoes in place, put a radial clutch bearing onto the pilot shaft; the clutch bell rides on this. I installed the optional clutch bearings, because they allow smoother operation while the engine is idling. There's also much less wear on the pilot shaft and, consequently, less maintenance.

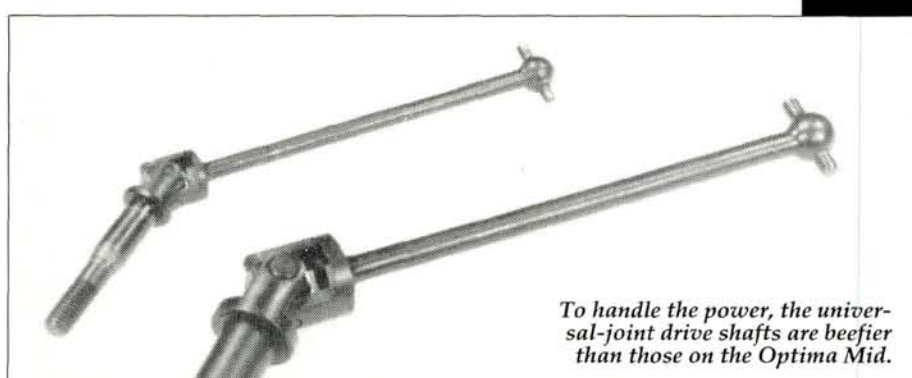
The kit includes a 13-tooth clutch bell that's suitable for larger, high-speed, off-road tracks, and 11-, 12- and 14-tooth clutch bells are available as options. With the clutch bell installed, bolt the engine down. The kit includes an exhaust pipe that I'm not sure can be called "tuned," but in a number of competitive runs, it didn't seem to curb the Burns' performance. To allow easier access, leave the pipe off until the radio system has been installed.

My radio system is the Futaba* PCM 1024. I didn't choose it because it has bells and whistles (any good 2-channel radio will do), but because it has a failsafe feature that can stop the car in its tracks if there's any radio interference. I opted to use

Futaba's FP-S131S servos because of the awesome 69 ounce/inches of torque they produce. These servos are approximately twice as strong as the standard servos used in electric racing. The PCM 1024 can be ordered with these monster servos, or, if you already have a system, you can use a single, stronger servo for the steering while the standard servo takes care of throttle and braking.

throttle operation if its front is under the inside servo screw. Two screws hold the servo in place; if you remove the inside screw, put the tank over the hole and replace the original screw with a longer screw, it's easier for the throttle to hit the wide-open position.

What's left? Mounting the wheels and the body are all that's keeping you from getting onto the track. To mount the tires on the wheels, sim-



To handle the power, the universal-joint drive shafts are beefier than those on the Optima Mid.

You need a receiver pack to power the radio system, but the packs we're used to seeing in electric cars don't provide enough power to get you through a race day. I recommend that you assemble a pack with cells in the 700 to 1000mAh range. The radio tray is designed to hold a 4-cell, AA pack, but for a faster radio response, I use a 5-cell, 1000mAh pack. It takes a little more work to get the battery tucked out of the way, but the insurance it provides makes it worth it. (During races, charge your receiver pack whenever you get the chance.)

With the radio gear installed, you can join the pipe to the chassis with a simple twist-tie. Screw the gas tank to its mounts, and the chassis is then essentially complete. There's less likelihood of the fuel tank interfering with

ply follow the instructions, and glue them to the rims. Sometimes, you can get away with not gluing the tires on a 1/10-scale car, but with the Turbo Burns, glue is a must, or the tires will come off in seconds. If you don't believe me, give it a shot. I guarantee you'll be reaching for the glue bottle in no time. Be warned: when the tires and rims have been dirtied, the glue bond will never be as strong as if glue had been applied when the tires and rims were new.

I enjoyed painting the body, because it's larger than the cars I usually paint. I used Pactra's* Fluorescent Racing Red and Sprint White paints, and I dyed the rims with Fluorescent Red Litespeed* Dy-Lon.

BURNIN' UP?

It's now time to see whether the Turbo Burns was worth

KYOSHO

TURBO BURNS

Type Off-road gas-powered 4WD buggy
Scale 1/8
Sug. Retail Price \$649.95

DIMENSIONS:

Overall Length 17.37 inches
Width 12.18 inches
Wheelbase 12.87 inches
Front Track 10.5 inches
Rear Track 10.12 inches

WEIGHT:

Gross (with battery) 7 pounds, 7 ounces

BODY:

Type Buggy
Material Polycarbonate

CHASSIS:

Type Pan
Material Aluminum

DRIVE TRAIN:

Primary Pinion/spur w/centrifugal clutch
Transmission Center gear diff
Differentials Three spider gears
Bearings Ball bearings

SUSPENSION:

Type (f/r) Lower A-arm/upper link
Damping (f/r) Oil-filled, coil-over aluminum shocks

WHEELS:

Front: Type One-piece plastic
Dimensions (DxW) 3.125x1.25 inches
Rear: Type One-piece plastic
Dimensions (DxW) 3.125x1.5 inches

TIRES:

Front Blunt spike
Rear Blunt spike

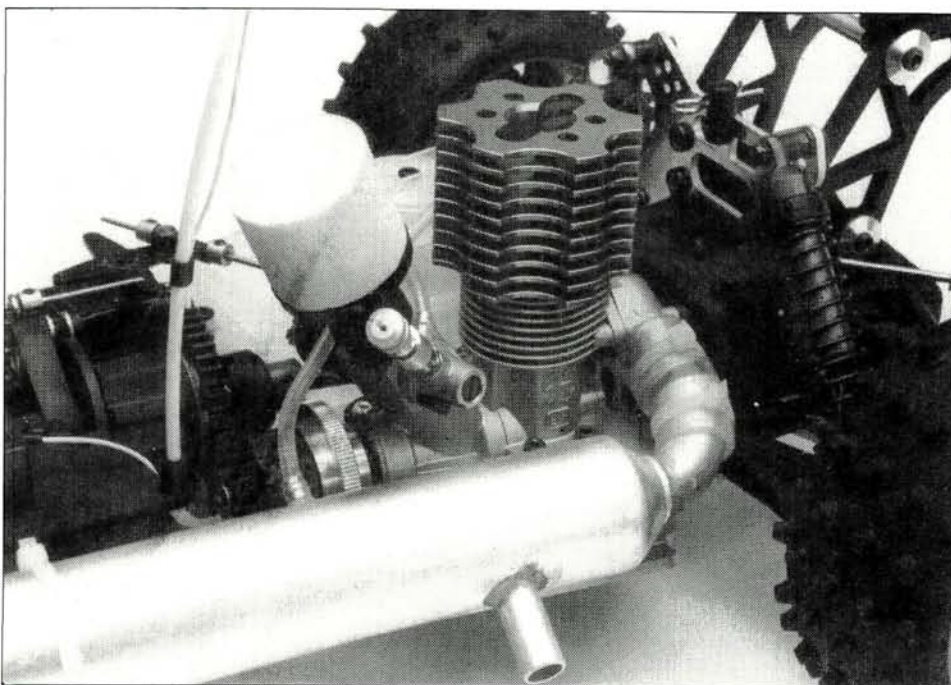
OPTIONS AS TESTED:

Futaba PCM 1024; O.S. EX-B engine; Kyosho metal spur gear; 12T clutch pinion.

COMMENTS:

After the initial cost of the Turbo Burns kit and its accessories, maintenance is inexpensive owing to excellent construction. The car withstands the vibration and stress caused by the engine. The only trouble spot is the plastic brake disc, which, if not properly adjusted, will melt. The O.S. EX-B engine provides more horsepower than you'll ever use. Just drive your pants off with this race-ready car!

The recommended O.S. EX-B engine provides plenty of power. The pipe and manifold attached to the engine are included in the kit (saves a trip to the hobby shop!).



all the greenbacks you slapped down on the hobby-shop counter. To get the Turbo Burns started, you'll need a few items in addition to those you're used to having with electric cars—a starter, a glow-plug igniter

Tork starter, which might be considered overkill for an airplane engine of this size, but it's needed here because the combination of the engine's high compression and the starter wheel take a lot out of a starter. The

Dyna-Tork easily turns the engine over. To light the glow plug, I use a McDaniel R/C* Ni-Starter. This is a pocket-size glow igniter with a Ni-Cd battery attached to its end, so there's no need to plug it into a large dry-cell battery.

Last, but not least—fuel. I've seen many newcomers to gas-powered

racing mistakenly assume that the more nitro there is in the fuel, the faster the car will go. This couldn't be further from the truth. Because of the engine's high com-

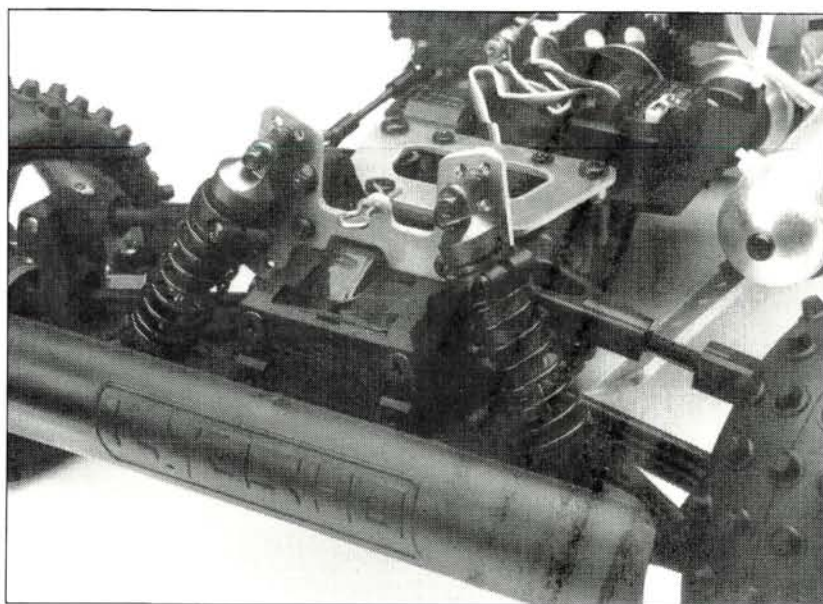
pression and minimal head clearance, you must use a low-nitro fuel (10 to 20 percent nitro). Be sure to use a fuel that was designed for 1/8-scale cars. Airplane-grade fuels generally don't have the type of lubricant needed to keep the engine in good shape. These car engines run much hotter than airplane engines because there isn't a steady flow of air to cool them.

After getting the engine fired up for the first time, I had to make some minor adjustments to the low- and high-end mixture screws on the carburetor. These aren't set at the factory, and, to get the engine running consistently strongly, I had to get the fuel mixture just right.

CHALLENGE FOR THE BURNS

My first time out with the Turbo Burns was at the first Kyosho 1/8-scale Challenge in Atlanta. (I finished putting the car together in my hotel room.) I have a certain amount of experience with

(Continued on page 90)



The aluminum front shock tower has a number of mounting positions that can be used to adjust progressive damping and/or ride height.

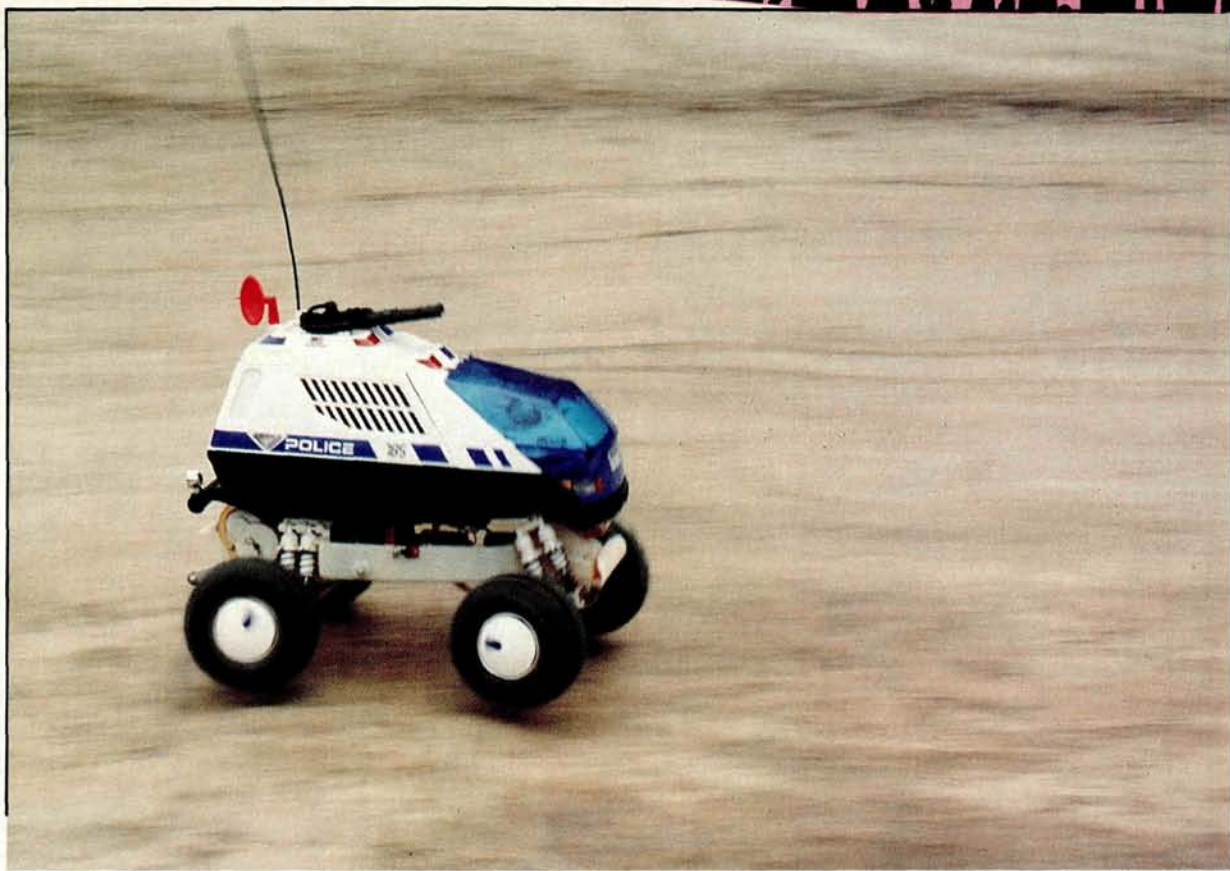
and some model-engine fuel, all of which are available from Tower Hobbies* or hobby shops that carry model airplane supplies.

I use the Sullivan* Dyna-

ROBO TRUCK



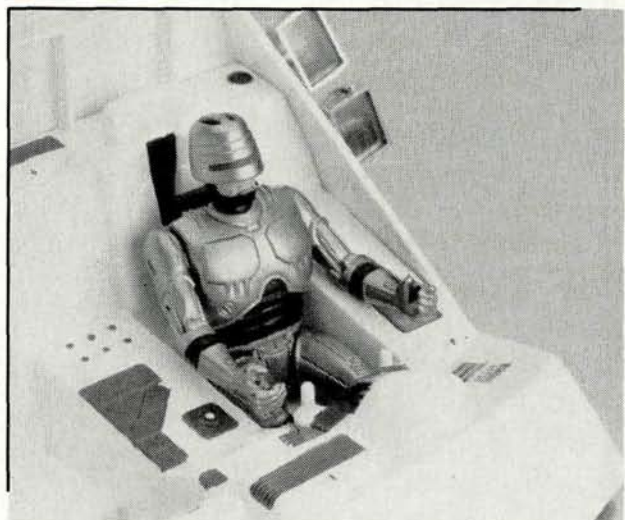
Titanium
task force



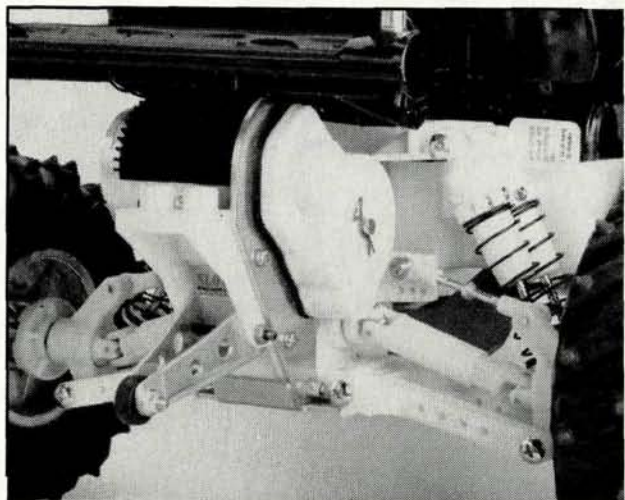
by CHRIS CHIANELLI

AS DAVID SEMANIK, creator/builder of the RoboTruck, puts it, "It all started in my local toy store"—true for many of us! While shopping for a birthday gift for a much younger relative, David spotted a Kenner's RoboJailer, complete with a RoboCop figure. The child/inventor mentality that's common in the modern modeler immediately

slammed into high gear. It took only a little eager eyeballing to estimate that the Kenner toy truck was conveniently close to 1/10 scale. Just as vividly as any self-respecting R/C squirrel can envision himself on a "grab-all-you-can-in-an-R/C-warehouse-and-throw-it-in-the-40-foot-



Kenner Robo Jailer comes with "action" figure. WOW!—bendable limbs!



Note Tamiya Lunch Box wheelie bar to handle Wobo Wheelies.



PHOTO BY YAMIL SUED

dumpster” contest, David imagined the RoboJailer body on his Sledgehammer chassis. After all, with four oil-filled shocks, urban pothole pounding and high-speed-chase curb jumping, the Sledgehammer does seem to follow the order of natural selection for the task, does it not?

Mounting the Kenner body to the Sledge was, surprising as it may seem, the easiest part. The axle wells lined-up right over the holes on the Sledge chassis that accept the body posts. The body posts were simply left out and four holes were drilled onto the floor of the truck body; self-tapping screws were then put

PARTS LIST

- Traxxas Sledgehammer
- Kenner Robo Jailer body
- RAm floodlights
- Kyosho flashers
- GI Joe M60 machine guns/flamethrower
- Tamiya Lunch Box wheelie bar



through the holes and screwed into what used to be the body-post mounting holes.

David's other add-ons include: Kyosho* front and rear operating floodlights (RAm* circuit board and lights for front flashers); Tamiya Lunch Box wheelie bar; and double dorsal M60 guns and a flame thrower (courtesy of G.I. Joe). With the aid of double-sided tape, the wheel covers from the Kenner kit fit nicely onto the Sledgehammer's wheels.

We at *Car Action* salute David and his very creative coupling of the Kenner's

ROBOCOP 2-

A MOVIE MAELSTROM!

by LYNNE SEWELL

MOVE OVER SUPERMAN, Batman, Spiderman! You're no longer equal to the task. Sure, you once exterminated the evil and reassured the righteous, but for the nasty '90s, a souped-up human just doesn't do it. We need a super something else! Have you noticed that our superheroes are no longer *supermen* (no, Wonderwoman, I haven't forgotten you, but your clothes were the pits!); instead, we have the totally terrific Turtles and, of course, RoboCop—now, for the second time. But there's a problem: "Is he a man or a machine? That's the dilemma," says Peter Weller, who again gets the starring robot role.

If you didn't see the "RoboCop" movie in '87, welcome back from Outer Mongolia, 'cause that's your only excuse. For those of you who did, Weller acknowledges that the absence of novelty had to be taken into account in creating the sequel. He says, "The character it-



self isn't a surprise this time, so we couldn't get by on just the novelty of the guy." "RoboCop" introduced us to the "metallic metamorphosis of murdered patrolman Alex J. Murphy," but in this new offering, Orion Pictures exposes our hero—man and metal—to a new danger: obsolescence!

Omni Consumer Products (OCP), the company responsible for the lawman's resurrection, has a new

RoboCop on the drawing board, and it's "a mightier, more malleable machanism" that won't be distracted by traces of memory and love.

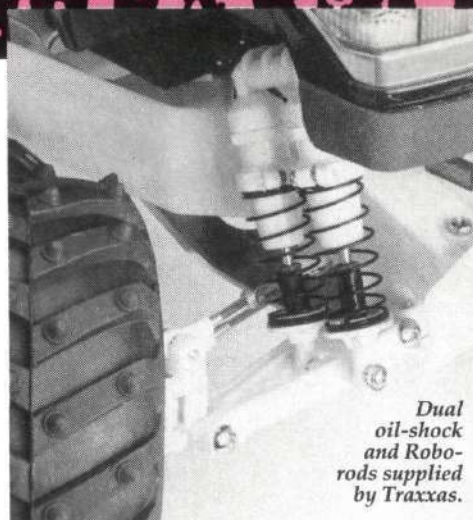
The Amazon forest has been contaminated by a nuclear accident, and in "Old Detroit" (where, thanks to OCP, the cops are on strike), a deadly designer drug ("Nuke"—how appropriate!) is making a few rich and all the others retch.

ROBO'S RULES

—just a few of the hundreds in his metal mind

- Serve the public trust.
- Protect the innocent.
- Uphold the law.
- Restrain hostile feelings.
- Take particular care to avoid offending anyone for any reason whatsoever.
- Don't rush traffic lights.
- Don't swing your arms on a ballroom floor.
- If somebody shoots at you, explain that their attitude is unproductive.
- When any directive contradicts another, obey both.
- Be accessible to OCP employees at all times.

Robo Ride and the Traxxas Sledgehammer. (We also note a slight smile on the RoboCop figure!) The move from the stock toy "suspension" is great for cross-town pursuit and transforms the otherwise "clattering constable" into one cool city cop.



Dual oil-shock and Robo-rods supplied by Traxxas.

*Here are the addresses of the companies mentioned in this article:
Kyosho/Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.
RAm, 4736 N. Milwaukee Ave., Chicago, IL 60630.

(Detroit dudes will be confused if they rush to the movie expecting to see their town, because it was shot in Houston, TX!) Only steel guts can tolerate the climate in these awful areas, but which will it be?—the metallic marvel, or OCP's new unit? I root for Robo I, because the "chromium cranium of the new unit has a mind as cunning and corrupt as any psycho-path"—and they call this a "new, improved model"?

ROBO RESERVATIONS

Although "RoboCop" grossed more than \$50 million in the U.S. alone, Producer Jon Davison had reservations about making a sequel. "'RoboCop' was such an incredibly tough shoot that I wasn't prepared

to go through it all again...simply to recycle what I worked before," he explains. "And unless we had a story that could give the character another dimension, I wasn't interested."

"Tough shoot"? You'll see the very latest in make-up techniques and special effects. Rob Rottin's robotic creatures seem to live and breathe—no trick photography *here!*—but this time, he faced some intriguing new challenges, in-

cluding the "Robo hanging torso," which I won't describe here, for obvious reasons. RoboCop's steel casing was refurbished, and, to allow actor Peter Weller more mobility and to save time in wardrobe and makeup, the SE team "went completely to fiber-



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glass." A special line of stunt suits was created by Chris Walas, who designed the title characters in "Grem-lins" and won an Oscar for his work on "The Fly." This time, his handiwork includes costumes of urethane "armor plate," which cushioned the actors' falls, and the "Robo fire suit," which was made of epoxy and a flame-proof fabric used for the garments of race-car drivers.

Animation teams worked "around the clock, frame by frame, to finish on schedule"—and the results speak for themselves. Computer graphics! Lasers! Be prepared to be impressed!

So does RoboCop survive, or do dastardly deeds destroy? Think I'm telling? *In your dreams!* And as for superheroes, what comes next?—Space-Age Neutered Rabid Gerbils?!

COMING
NEXT
MONTH!

CHECK OUT

MASAMI'S YOKOMO



FEATURES

ROAR On-Road Nats
JG Lazer Conversion
Connector Inspector!

TRACK REPORTS

Kyosho USA-1
Tamiya Saint Dragon
Kyosho Ultima II

COLUMNS

Dirt Digest
Scoping Out
Troubleshooting

TROUBLESHOOTING

We've persuaded veteran illustrator Jim Newman to lend his talents to this column. He has been illustrating *Radio Control Car Action's* "Pit Tips" ever since the magazine started, and he has contributed regularly to one of our other publications—*Model Airplane News*—for more than 20 years! We love his work, and we're sure you will, too.

If you have a technical problem that your hobby shop or racing friends can't solve, give us a shout at *Radio Control Car Action*, and we'll see if we can find an answer. Questions should be technical and should be addressed to Troubleshooting, c/o *Radio Control Car Action*, 251 Danbury Rd., Wilton, CT 06897.



WHICH PITCH?

I've been playing with gas cars for seven years and electric cars for five years, but I still haven't figured out one thing: what are the advantages of gears with higher pitch, e.g., 48 and 64 pitch? Do they just give you a quieter gearbox? If not, what else do they do? Also, why is a belt drive such an advanced power train? I'm used to the good ol' 32-pitch, not the new ones. I'd like some detailed answers.

Hyon Chung
Bronx, NY

The higher-pitch gears are used primarily because they offer a wider variety of ratios for use when dialing-in your car. If your run time is 4 minutes, 45 seconds on one battery pack, ideally, you should gear up to go a little faster and dump the battery closer to 4 minutes. If you were to go up one pinion size with 32-pitch gears, the change would be too much, and you'd dump sooner than 4 minutes. On the other hand, going up one tooth with 64-pitch gears would only take about 25 seconds

off your run time, and you'd still be above the 4-minute mark. A secondary benefit of gears with finer pitch is that they run a little more smoothly, and yes, slightly less noisily.



DISCO GLITCH

The other day, I had a horrible time racing at my local club because my car was glitching like mad! I couldn't figure it out. I had been racing there for three months with the same setup and never had a problem before. I always clean my motor after a day's racing. I always change the brushes after every 10 or 12 races, or when they look worn. I use a 4.8V receiver battery pack in case the glitching is caused by hard accelerations that put demands on the main pack and draw current away from the receiver; I also had new batteries in my transmitter that day, but it still glitched. I noticed a man playing a pocket AM/FM radio—the first time I had ever seen one played in the pits. Could my glitching be caused by the radio? I use a Novak mini-receiver and T-4 SC, and a Futaba Magnum AM radio. (I didn't cut the receiver antenna.) I hope you can help me.

Edward "Speed Demon" Walsh
Middle Village, NY

It's highly unlikely that the radio is causing interference. These radios are receivers only, and they operate on different frequencies from those used by our R/C systems. It seems as though you covered most of the trouble spots, but your problem may not be with your car. If you can, check the frequencies used by the other racers. If a couple of them are right next to your frequency, they could be hitting you. For instance, if you're on 74, and they're on 72 and 76, they can "gang up" and hit your radio.

Try the car once more in a different heat and see what happens. If you still have the glitching, use a process of elimination to determine what's wrong with your radio.

First, try another frequency to see whether you have a damaged crystal. If the crystals are in good shape, check the receiver by using the stock one or another Novak. (Try to borrow one; don't buy a new one.) If the problem persists, ask one of your friends if you can put your crystal in his radio for a minute to determine whether the transmitter is the source of your problems.

If, after these tests, the radio is still giving you a hard time, consider returning your radio to Futaba to be tuned-up.

S148 servo isn't powerful enough to steer both wheels, and this results in a wide, 180-degree turn. Is there a more powerful servo I can use?

Dale Kenaston
Some place, USA

Check to see whether your steering is binding. In many cases, the S148 has enough power to turn the wheels of a monster truck, but, if you're after more power, the Futaba S131S has gobs of it. The 131 has almost the same dimensions as the 148, but it's slightly shorter, so it will be a direct replacement. Its transit speed is also faster, and this will quicken your steering response.



SMOKIN' SUPER CHAMP

I need your help! My 6-year-old Super Champ speed controller catches fire when I put it into reverse, and there's a black hole where it has been burnt through. Can you help?

Roy Rush
Bucyrus, OH

Fire! This is a first! Needless to say, you have a big problem with your speed controller. I don't even want to hazard a guess on this one! Your best bet would be to get yourself another speed controller. Anything that catches fire is seriously malfunctioning and shouldn't be used again. To ensure that this doesn't happen

again, enlist the help of a hobby-shop employee or an experienced builder to install a new speed controller. It sounds as if you have an R/C Christine on your hands!



PAIN IN THE REAR

I own a Tamiya King Cab, and I wonder if any of your other readers are having trouble with the diff. Every race, I have to pull out the old gears (which I installed for the previous race!) and put in brand-new gears. It's just too expensive to put gears in after every run and still not finish. My friends at the track are stumped. I've all but given up the struggle to reach the winners' circle; even my dog doesn't like me or my truck now! I need some answers to regain some dignity, or even to win at the track. Every time I race, people take bets on how long I'll last. You're my only hope!

Tony "Can't-Make-It-Around-the-Track" Lara
Riverside, CA

Some readers have mentioned having trouble with the gears in the King Cab, but nothing like the problem you describe. I've built and run my own King Cab many times, but I've never had this kind of gear-box trouble. As long as you built the transmission exactly according to the instruc-



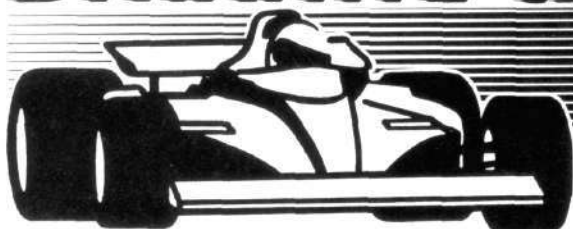
SUPER SWEEPER

Except for its Futaba 112B speed controller and Trinity Monster stock motor, my Crusher is mostly stock. My Futaba FP-

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TROUBLESHOOTING

tions, I can only guess that there's a marked misalignment of the gears, or that you run an 8- or 9-turn drag motor. This is the type of problem that I'd have to see to give a proper diagnosis. Visit a reputable hobby shop, and see if the people there can give you a hand.



WHERE'S THE BRAKES?

I'm saving my allowance money to buy a T-4 Novak speed controller for my RC10. One thing keeps bugging me: does the T-4 have brakes, and if it doesn't, how do you stop the car? If it does have brakes, can it stop an RC10 with a big brand-name motor going full speed?

Joe No-Name Racer
Hacienda Heights, CA

The brakes on an electronic speed controller aren't a visible mechanism. Instead, the speed controller creates a resistance across the field of the electric motor, and this has a braking effect. The resistance value determines how strong the braking is.

With a hotter motor, you have to be more careful when braking, but most of the better speed controllers like the T-4 should be able to handle it.



MONSTER MOTOR MEGA PULLER

I'm trying to scratch-build a six-wheel, two-motor pulling truck, but I've run into a few problems, and no one around here can help me. Is it possible to run two motors off one speed controller? If not, how can I hook two speed controllers together? Finally, how can I join more than the basic number of cells in an average pack and hook them up?

Fred Mitchell
Galax, VA

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You can run two motors off the same speed controller, and it can be done in two ways: first, the motors can be wired in parallel. For this, you'd have to solder a jumper wire from the positive lead of the motor to which the speed controller is attached and then attach it to the positive lead of the other motor (likewise, for the negative terminals). If you use a 7.2V pack, both motors will be supplied with 7.2 volts.

Second, you can connect the motors in series. For this, you'd solder the positive lead from the speed controller to the positive lead on one of the motors, and the negative lead from the speed controller to the negative lead on the other motor. Then solder a jumper wire from the open negative terminal of one motor to the open positive lead on the other motor. With this method, the motors would share the 7.2 volts and be supplied with about 3.6 volts each.

For pulling, connecting the motors in parallel would be your best bet, because both motors receive more juice, but under such loads, you'd need two speed controllers.

To wire-up two speed controllers, simply attach a speed controller to each motor, then connect them to a Y-cord, which should be available from the radio's manufacturer. Plug the single end of this Y-cord into channel 2 on your receiver. For the batteries, either attach a separate pack to each controller, or attach both speed controllers to one battery.



SKIRTIN' YOUR TRUCK

I bought an RC10 about a year ago, and I've turned it into a truck by using a JG conversion kit. Is there any way to make the chassis less noticeable, e.g., by lowering the body?

I was thinking of turning my conversion into a puller. Do you have any suggestions for modifications?

Chris Spainhour
King, NC

One of the best ways to hide your conversion truck's chassis is by attaching some side skirts to it. These polycarbonate skirts, which are already included on the JR-XT and the Kyosho Ultima, are cut to shape, painted black and stuck to the chassis sides with double-sided tape. They're pretty inexpensive and give you a sharp-looking truck.

As for converting your RC10 into a pulling truck, forget it! The drive train for the RC10 is designed to be used in a 2WD off-road car. Using this transmission in a racing truck would be stressful enough, and I shudder at the thought of attaching a pulling sled, too!

Send your technical questions to
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Car Action, 251 Danbury Road,
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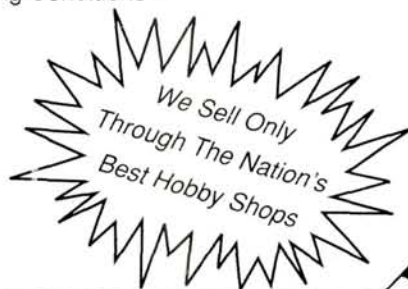
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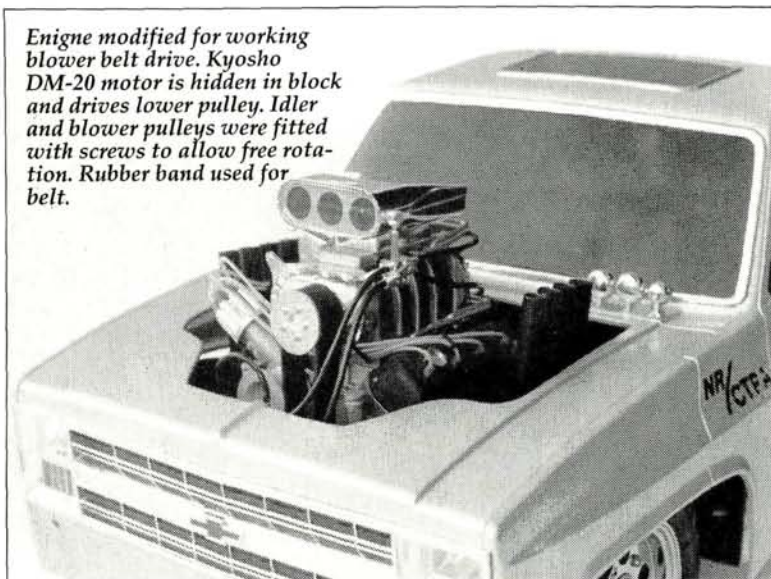
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TRUCK STOP

by DAVE SPROUL

Enigne modified for working blower belt drive. Kyosho DM-20 motor is hidden in block and drives lower pulley. Idler and blower pulleys were fitted with screws to allow free rotation. Rubber band used for belt.



Hemi heaven!



Finished Hemi is almost too nice to hide in R/C vehicle. Note black fuel lines, chrome distributor cap, scratch-built headers and Clod "bug-catcher" scoop.

IN THIS MONTH'S "Truck Stop," I discuss detailing the ultimate scale accessory for your truck: Parma's* 1/10-scale Keith Black Hemi-Engine. Drag racers and boaters stay tuned; this accessory will also add realism to your R/C vehicles!

The 1/10-scale Keith Black Hemi-Engine model kit was first introduced around 1969, but because there wasn't much interest in a 1/10-scale static model engine, its production run was limited. In the past, model kits have been molded in 1/32, 1/24, 1/25, 1/16, 1/12 and 1/8 scale, but not in 1/10 scale. The three original kits produced by MPC Model Company (later bought out by ERTL) consisted of a drag engine (all KB Hemis) and a scale driver

of Don Garlits, Shirley Muldowney, or Don Prudhomme.

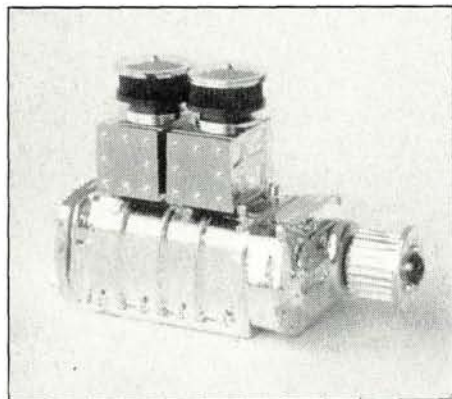
When I started to build the Quicksilver Puller (see the April '89 issue of *Car Action*), I looked for an old engine kit. I met a modeler at a model show/swap meet in Pittsburgh, PA, and he just happened to have two Muldowney engine kits. One was new and cost \$55; the other, however, was partially built and in relatively good shape. I grabbed it for only \$15!

When the Quicksilver appeared in *Pulling Power*, *Hot Rod* and *R/C Car Action*, there was an immediate demand for this incredible scale engine. Enter Parma International. ERTL still had the old MPC molds, and it agreed to make a few engines under the Parma label. To keep the price low, the driver figure was eliminated, and the packaging was changed from a fancy box to a bag. The Parma Hemi will cost \$12, and it's sure to be a hit!

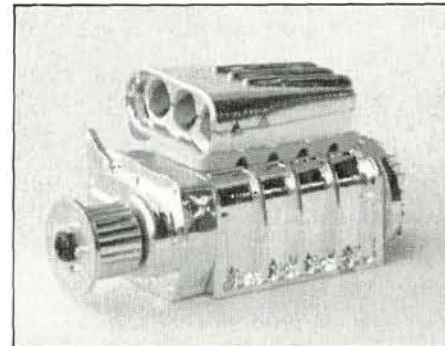
The plastic parts are well-detailed, and they have very little flash. Although there are a few imperfections in the chrome parts, the overall quality is good. The headers are the funny-car type, which should make scale drag racers happy. If

you're making a rail dragster, pulling truck, monster truck or drag boat, you'll need to make the right type of header. Use Plastruct's soft, polystyrene, 1/4-inch plastic tubing, but be careful when you heat it.

Because the directions for the basic engine assembly are fairly straightforward, I'll concentrate on the detailing. It's important to trim the flash off all parts. Assemble the block, heads, front cover, intake manifold and rear adapter plate, and paint them as one unit with a



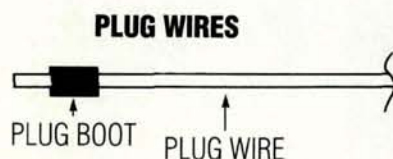
Predator carbs mounted on blower are from USA-1 kit.



Old MPC version of blower, mounted in Quicksilver, shows differences in chrome blower.

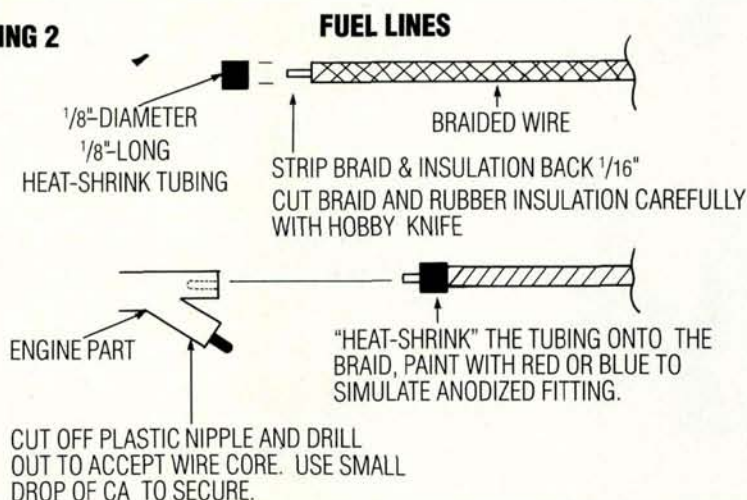
TRUCK STOP

DRAWING 1

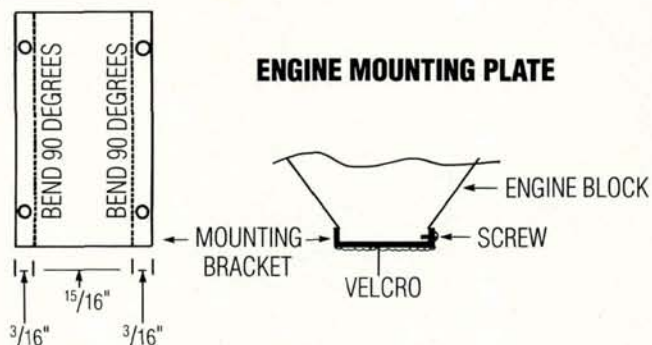


PLUG BOOTS MADE OF $\frac{1}{8}$ "-LONG PIECES OF WIRE INSULATION. USE RED OR BLACK WIRE.

DRAWING 2

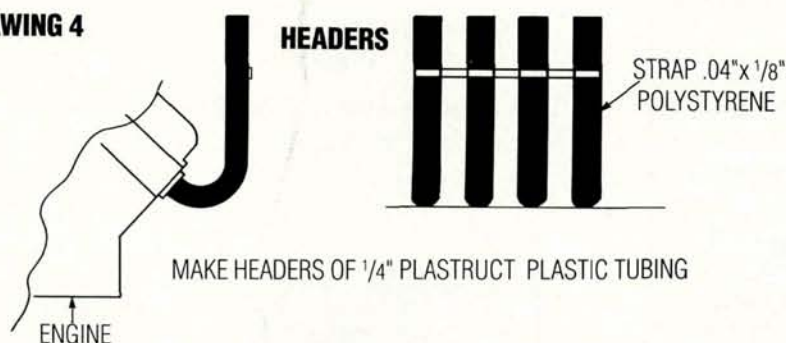


DRAWING 3



ATTACH MOUNTING PLATE TO ENGINE BLOCK IN PLACE OF OIL PAN. USE VELCRO TO FASTEN TO TOP OF SERVO OR RECEIVER

DRAWING 4



ADDITIONAL TIPS

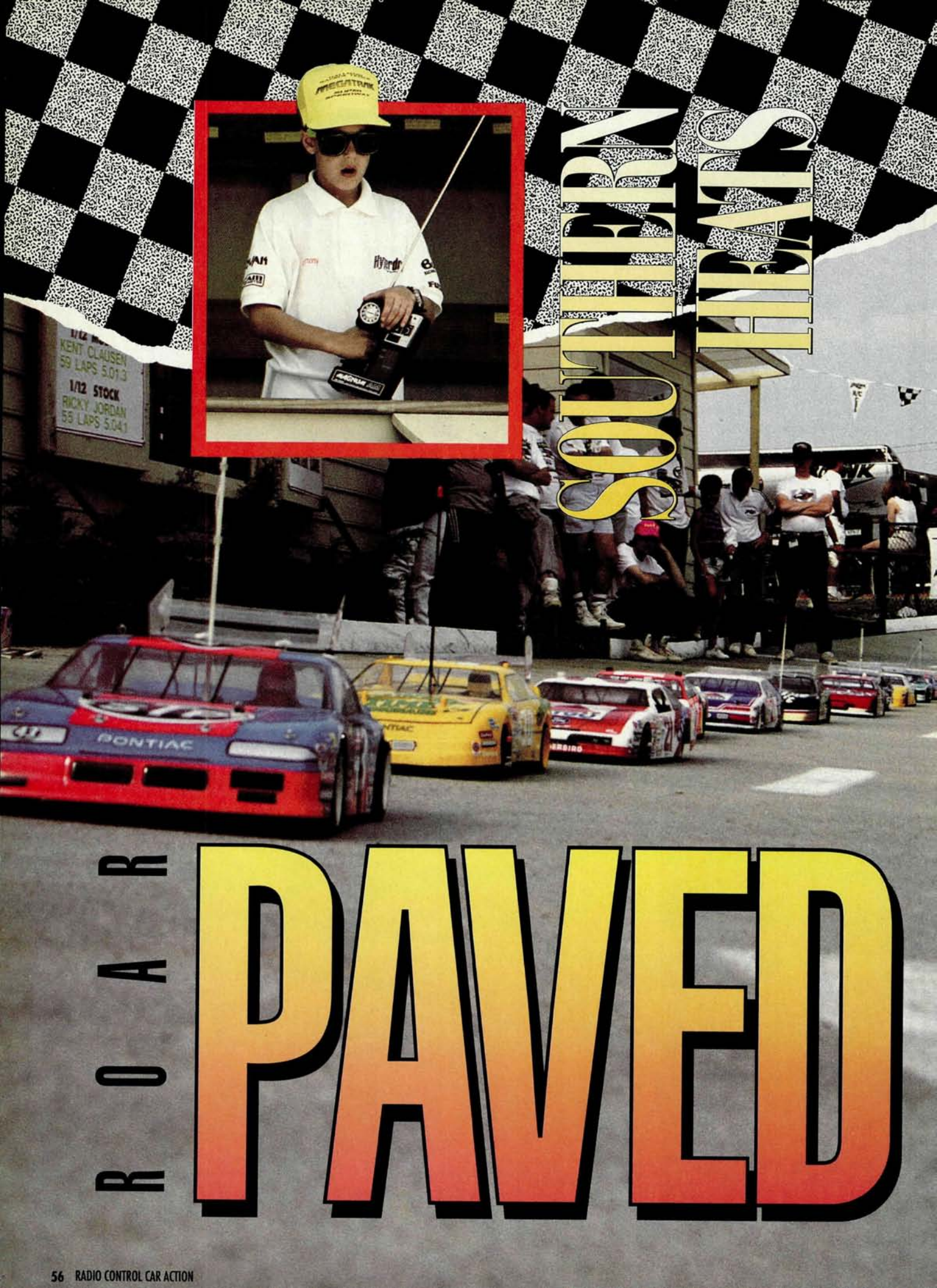
1. Use Martin Senour no. 7808 Fast-Dry Chrome Paint over automotive primer for chrome-look headers, or use directly on plastic parts for a shiny crinkle finish. Be sure to spray on light coats for the desired finish.
2. In place of a fuel injector, substitute scale Predator carbs from Kyosho's USA-1 kit. The blower scoop can be fitted on top of carbs, or use air cleaners from a USA-1 kit.
3. Magneto-gray or silver body with red cap simulates a Mallory-brand magneto. For a very realistic appearance, attach a Mallory decal from a $\frac{1}{25}$ -scale model to the side of the magneto.
4. Make plug-wire looms from small pieces of .040-inch-thick polystyrene plastic. Drill to accept the wires, and paint with contrasting color before installing.
5. To mount the engine over the steering servo or receiver, substitute an aluminum bracket and Velcro for the oil pan. (See drawing no. 3.)
6. Drawing no. 4 shows one example of scratch-built headers.

COLORS

Engine Block—Blue, or your choice
Valve Covers—Black semi-gloss, or leave chrome
Headers—Black semi-gloss, smooth chrome, or silver crinkle finish
Blower—Leave all chrome, or paint recesses flat black, red, or engine color
Blower Belt—Flat Black
Magneto—Gray, silver, or silver crinkle
Magneto cap—Leave chrome, or paint red or black

good-quality model paint, such as Testor's* Model Master. If you use R/C paints on polycarbonate bodies, first prime all the plastic parts with automotive primer. (While we're on the subject of paint, you can use the colors recommended in the instructions or be creative.) Check full-scale magazines, e.g., *Hot Rod*, *Super Stock* and *Drag Illustrated* for ideas. The blower and valve covers are chrome plated, but they can also be painted. In a previous "Truck Stop," I recommended the use of oven cleaner to remove chrome plating. This usually works very well on model-car chrome, but, unfortunately, it didn't touch this stuff! I used Krylon no.

(Continued on page 220)



SOUTHERN SHELTERS

R O A R

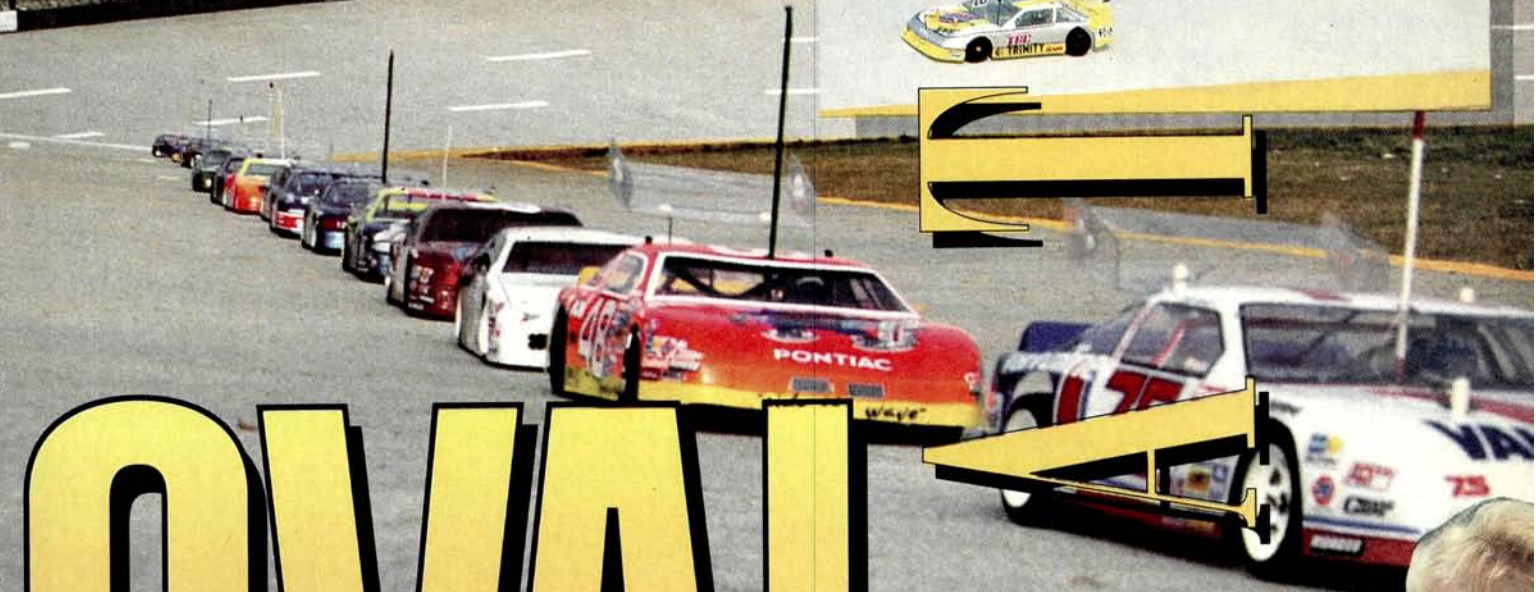
PAVED



PHOTOS BY JIM SHEPKA AND STEVE POND



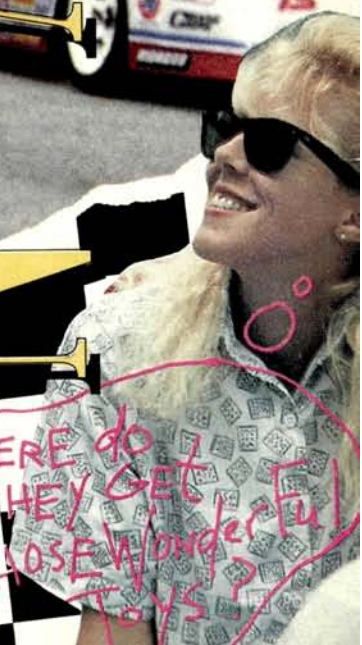
by JIM SHEPKA



OVAL



WHERE DO THEY GET THOSE WONDERFUL TOYS?



PAVED OVAL



Counterclockwise from left:
 ■ This beautiful Tide car shows just how stiff the concours competition was. ■ It's a bird...it's a plane...it's Magic Man! Showing no trace of emotion, Joel Johnson assesses the competition.
 ■ View of the Peachbowl from the Triad trailer. ■ Judges are left to make the difficult concours decisions. ■ Inset: Roy Kelley, owner of the Peachbowl, hosted the 1990 ROAR Paved Oval Nationals.





THE 1990 ROAR Oval Nationals returned to the Peachbowl over the Memorial Day Weekend. More than 430 racers from across the U.S. and Canada descended on Snellville, GA, to take their shot at a National Championship in the $1/10$ - and $1/12$ -scale Stock and Modified divisions.

Two rounds of qualifying were scheduled for both Friday and Saturday, with the Mains set for Sunday. Track officials decided that both rounds of Stock would be run before the Modified Class.

Friday's first round of $1/10$ -scale Stock qualifying brought with it sunny skies and a light breeze—ideal racing conditions. Of the 182 competitors who came to the line, only three were able to crack the 43-lap barrier. Mark Johnson set the early pace with a 4:1.73 run; right on his heels were Ray Klebanow with a 43/4:2.65 and John Cole with a 43/4:4.60. In round 2, only one racer accomplished the 43-lap feat: Forrest

● ● ●
“Of the 182 competitors who came to the line, only three were able to crack the 43-lap barrier.”



PAVED OVAL

Whitson, with a 4:3.83 run.

In Saturday's round 3, two more drivers did the trick: Mike Moore, with a respectable 43/4:3.84, and Tom Lamb Jr., who had a 43/4:5.82 run. With only one round left, at least 20 drivers were within 3 seconds of making the show! Emotions were running high (as was the humidity—



round 3. With the pressure of the final round, defending National Champion Mike

“...there was more action in this heat than there is on the Santa Monica Freeway during rush hour! This probably explains why no one from this heat qualified for the A-Main!”



Serious pit station, don't you think? Note diagnostic equipment on left.

whew!) when Tim Holland, who came out of the E Qualifier, took TQ honors with a time of 43/4:0.82! Only 5 seconds separated the top eight qualifiers.

Ricky Jordan led the 1/12-scale Stock qualifiers by a huge margin with a ballistic 55-lap effort and a time of 5:4.94. His closest competitor was more than two laps off the pace: Blair Sonzogi turned in a respectable run for the 2nd spot: 53/5:5.72.

In round 2, several drivers broke into the 53-lap range: Paul Kelley (5:2.06), Bruce Triplett (5:2.83) and Jack Kloeber (5:3.63). Going into day two, Jordan was the man to beat.

There was no change in the top 10 in Saturday's

Murphy turned in his best effort for the outside pole with a time of 53/5:2.06. All the drivers had their work cut out for them, as Jordan's 55-lap TQ run was in another league.

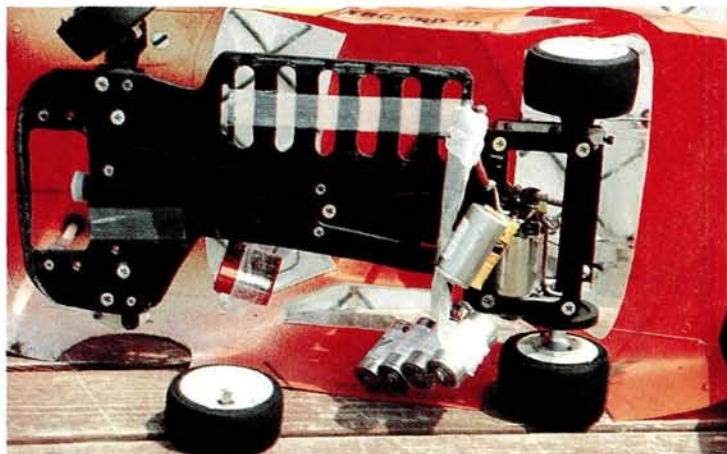
With only 30 entrants, the 1/12-scale Modified Class had the smallest draw, but the racing was still exciting. In round 1, only one driver managed 59 laps—using a stick radio, no less! Team Triad's Andy Dobson set the early pace over defending National Champion Kent Clausen with a 59/5:5.05. These two were the best of the field, and Clausen eventually wrestled away TQ honors in Saturday's round 3 with a 59/5:1.03 effort. Third place went to Bud Bartos

with a 58/5:4.97, and Dwight Smith (57/5:2.62) and Terry Rott (57/5:2.94) rounded out the top five.

The 1/10-scale Modified drivers were the last to show their stuff. Andy Dobson led the first-round qualifiers with a 48/4:3.67, followed by Tony Neisinger (48/4:5.72). In round 2, there was little change in the standings, although some interesting driving techniques were exhibited during the B qualifier. Throughout the weekend, there was more action in this heat than there is on the

Santa Monica Freeway during rush hour! This probably explains why no one from this heat qualified for the A-Main!

In Saturday's third round, Cliff Lett led wire-to-wire with his new oval chassis and had a time of 48/4:4.41—good enough for the 4th spot. Ricky Jordan also made the top 10 with a run of 47/4:2.02. With the A-Main field pretty much set, Joel Johnson was the man “on the bubble.” With a last-row starting position in the final heat, his chances of



High-speed modified cars are often subjected to additional modifications!

STAND UP and Be Counted?!



making the show weren't promising. When the buzzer had sounded and the smoke had cleared, Joel "I never TQ!" Johnson had come through in the clutch with a blistering 49/4:6.20 run! Bob "Bullet" Light ran a close 2nd with a 48/4:1.36, and Terry Rott qualified 5th with a time of 48/4:4.77.

CONCOURS

Saturday morning was sunny, but the forecast threatened rain. Once the parade of cars was set, the Concours judges began the difficult task of choosing the Best Paint and True Concours vehicles. This aspect of the sport seems to get better with every event. (I wish the same could be said for some of the drivers' abilities, although I was told that this year showed a marked improvement over last year's event!).

The judges narrowed the field and picked the finalists. Dan Toll took top honors in the Best Paint category with his Pepsi Cool Can Special. Finishing a very close 2nd was Bill Henning with his Alpo creation, and Steve Weller took 3rd with his 7-Up special.

True Concours went to Mike Chambers for his beautifully detailed Tide racing machine. Next came Gordie Beidler's Citgo-powered racer and finally Mike Cohen in "The Kings" #43 STP special.

THINK WE'LL start a new series here at *Car Action*—kind of a Trivial Pursuit for serious R/C racing fans. Here's your first question: for 10 points, name the driver who held a ROAR National $1/12$ -Scale Modified title for less time than it took to run the race.

Before I give you the answer, let me set the scene...

Georgia has friendly faces, fine food and beautiful countryside, but those late-afternoon thunderstorms and red Georgia clay can be a real nuisance. There are two rules to remember: never—and I mean *never*—park on a hillside during a thunderstorm. Unless you're into mud-bogging, or have a keen sense of humor, stay on the pavement. You don't have to be an engineer on the Hubble telescope to figure out the second rule: make sure all electrical connections are well-insulated from the elements, and be sure they're grounded!

On Sunday, the running of the Mains was delayed by the predicted 1-in-10 chance of thunderstorms! Half of the program had been completed before the rain came, and ROAR officials decided that all the A-Mains would be run at 6 p.m. (weather permitting), so that at least the National Champions could be crowned. Although Monday was set aside as a rain date, every effort was made to complete the show on Sunday.

After a 4-hour delay, the skies cleared, and although the track was damp in spots, the $1/12$ -scale Modified drivers got ready to race!

Frantically—because they hadn't been aware of the conflict—Kent Clausen and Mike McBride made a 1-minute call. They were both on the same frequency!

(ROAR officials later admitted that the error was theirs.) McBride was asked to shut down and pull his car off so that the race could begin. Although he *wasn't* a happy camper, he agreed to take his equipment behind the drivers' stand to work on the problem. The 5-second call was made, and the racers were off and running.

Dobson and Bartos went ballistic off the start, and Clausen was in hot pursuit until he did a major right turn coming out of turn 4. In a not-so-sportsmanlike move, he leaned over the drivers' stand and told McBride to turn off his #\$\$%@ radio!

In the meantime, car no. 4 charged to the front and pulled away from the pack. The official scoreboard showed him four laps up on the field!

As it turned out, because of a short in the system caused by the rain, the computer had failed to count half the cars! ROAR official John Thawley and track owner Roy Kelley met behind closed doors and decided that the race would be re-run at the end of the schedule.

As the cry "Are we having fun, yet?" was heard throughout the paddock, race organizers worked out the computer glitch, stroked a few egos and incorporated stopwatches and lap counters as backup. The rest of the event went off mostly without a hitch, and a new $1/12$ National Champ was crowned just before midnight.

Kudos to anyone who guessed Dwight Smith! Rumor has it that a collection was taken up for a hard-luck trophy!



PAVED OVAL

1/12 MODIFIED

FIN	QUAL.	NAME	RADIO	BODY	CHASSIS	MOTOR	SPEED CONTROLLER	TIRES	TRACTION COMPOUND
1	1	Kent Clausen	Futaba	McAllister Pontiac	Assoc. 12L	Assoc.	Novak 410	Assoc.	All-Pro
2	2	Andy Dobson	Futaba	Bolink T-bird	TRC Pro 12	Trinity	Novak 410	TRC	All-Pro
3	4	Dwight Smith	Futaba	Andy's Lumina	Assoc. 12L	Bud's 13	Novak T-1	Yokomo	All-Pro
4	7	Mike McBride	Futaba	Bolink T-bird	Agitator	Twister 13	Tekin 610	Mini-Tech	Dr. D
5	5	Terry Rott	KO Propo	Bolink T-bird	Bolink	CAM 14	Novak 410	Bolink	Bolink
6	10	Chris Smith	Futaba	Bolink T-bird	TRC Pro 12	East Coast 13	Novak T-1	Twinn-K	Bolink
7	8	Tony Neisinger	Futaba	Bolink T-bird	Cindial	Trinity	Tekin 610	TRC	TRC
8	9	Jim Fuller	Futaba	Bolink Lumina	Assoc. 12L	Trinity	Tekin 410	TRC	TRC
9	3	Bud Bartos	Futaba	Bolink Pontiac	Bud's/scratch	Bud's 12	Novak T-1	Twinn-K	All-Pro
10	6	Jimmy Simmons	Futaba	Bolink T-bird	Bolink	CAM 14	Novak T-1	Bolink	none

1/12 STOCK

FIN	QUAL.	NAME	RADIO	BODY	CHASSIS	MOTOR	SPEED CONTROLLER	TIRES	TRACTION COMPOUND
1	1	Ricky Jordan	Futaba	Bolink T-bird	Bolink LTD		Novak T-1	TRC	Bolink
2	3	Paul Kelly	Futaba	Bolink T-bird	Bolink LTD	H	Novak T-1	TRC	TRC
3	2	Michael Murphy	Futaba	Bolink T-bird	Assoc. 12L	A	Tekin 600	TRC	Bolink
4	5	Jack Kloeber	Airtronics	Andy's Lumina	Delta Spyder	N	Head Ele. Pro 1000	Twinn-K	Twinn-K
5	4	Bruce Triplett	Futaba	Andy's Lumina	TRC Pro 12	D	Novak T-1	MCA	SAT
6	10	Dave Raber	Futaba	Bolink T-bird	TRC Pro 12	O	Novak T-4	MCA	None
7	8	Richard Carpenter	Futaba	Andy's Lumina	TRC Pro 12	U	Novak T-4	MCA	None
8	6	Blair Sonzogi	KO Propo	Andy's Lumina	Corrally	T	Tekin 600	TRC	TRC
9	7	Steve Dunn	Futaba	Bolink T-bird	Agitator 12	S	Tekin 700	Assoc.	Bolink
10	9	Cliff Guest	Futaba	McAllister Olds	TRC Pro 12		Novak T-1X	TRC/MCA	All-Pro

1/10 MODIFIED

FIN	QUAL.	NAME	RADIO	BODY	CHASSIS	MOTOR	SPEED CONTROLLER	TIRES	TRACTION COMPOUND
1	3	Andy Dobson	Futaba	Bolink Pontiac	TRC LTD	Trinity 11	Novak 410	TRC	TRC
2	4	Cliff Lett	Airtronics	Assoc. Lumina	Assoc. Oval	Assoc. 12	Novak 410	TRC	All-Pro
3	7	Bud Bartos	KO Propo	Bolink Pontiac	Assoc. 10L	Bud's 12	Tekin 700	Bolink	n/a
4	5	Terry Rott	KO Propo	Bolink Pontiac	Bolink LTD	CAM 14	Novak 410	Bolink	Bolink
5	1	Joel Johnson	KO Propo	Andy's Lumina	TRC LTD	Trinity 11	Corally	TRC	TRC
6	6	Tony Neisinger	Futaba	Bolink Pontiac	TRC LTD	Trinity 11	Tekin 610	TRC	TRC
7	9	Tim Lanier	KO Propo	Bolink Pontiac	Bolink LTD	CAM 13	Novak T-1	Bolink	Bolink
8	8	Warren Darby	KO Propo	Bolink T-bird	Bolink LTD	Revtech 13	Novak T-1X	Bolink	Bolink
9	10	Ricky Jordan	Futaba	Bolink Pontiac	Bolink LTD	CAM 13	Novak T-1X	Bolink	Bolink
10	2	Bob Light	KO Propo	Bolink Pontiac	TRC LTD	Trinity 11	Corally	TRC	TRC

1/10 STOCK

FIN	QUAL.	NAME	RADIO	BODY	CHASSIS	MOTOR	SPEED CONTROLLER	TIRES	TRACTION COMPOUND
1	1	Tim Holland	Futaba	Bolink LeBaron	TRC Lynx II		Novak T-1X	TRC	TRC
2	6	John Cole	Futaba	Bolink Pontiac	Bolink LTD	H	Tekin 600	Bolink	Bolink
3	9	Paul Covington	Futaba	Bolink T-bird	TRC Lynx Elite	A	Tekin 700	TRC	TRC
4	2	Mark Johnson	Futaba	Bolink Pontiac	Bolink LTD	N	Novak T-1	Bolink	Bolink
5	8	Tom Lamb Jr.	Futaba	Assoc. T-bird	Assoc. 10L	D	Tekin 700	TRC	TRC
6	3	Ray Klebanow	Futaba	Andy's T-bird	TRC Lynx II	O	Novak T-1X	TRC	TRC
7	5	Mike Moore	Futaba	Bolink Pontiac	Bolink LTD	U	Novak T-1	Bolink	Bolink
8	4	Forrest Whitson	Futaba	Bolink LeBaron	Bolink LTD	T	Novak T-4	Bolink	Bolink
9	10	Ray Johnson	Futaba	Bolink Pontiac	Bolink LTD	S	Novak T-1X	Bolink	Bolink
10	7	Brian Painter	Futaba	Bolink Pontiac	Bolink LTD		Novak T-4	Bolink	Bolink

To receive their beautiful plaques, all the winners were required to run at least one lap in the Mains with their cars as they were presented in Concours. No gripes here: they all put in the required lap in their respective heats—even if it meant running with rubber tires, alu-

minum rims and no wing!

BACK TO THE TRACK

With all the preliminaries out of the way, it was finally time to race. The format called for the Stock Classes to be run first (in reverse order), followed by the open cars. The A-Mains would be run at the

end of the program. When the entire Stock program had been completed (19 heats), the threatening skies opened up.

After almost 4 hours, the skies cleared, and the organizers decided to bring the A-Mains to the line at 6:30. Race organizers checked

with the weather bureau at the airport and were informed that more of the same was on tap for the following day. With that in mind, it was a good decision to at least get in the A-Mains so that the National Champions could be crowned.

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Although the track was still damp in spots, it was dry enough to run on. The call went out to the 1/12-scale Modified drivers, and they were promptly brought to the line. As it turned out, the race had to be re-run later in the program (see sidebar).

There was an additional delay while the computer were being checked, and this allowed time for tempers and egos to return to a rational level. Once sanity had returned to the Peachbowl, the 1/12 Stockers were called to the grid.

If Ricky Jordan's qualifier was any indication, the fight would be for the runner-up spot. While Jordan again ran away from the field, Mike Murphy and Paul Kelley were caught up in a great fight for the no. 2 spot. Murphy tangled with a back

marker at the 3-minute mark, and this moved Kelley up a position. Jordan's 55/5:2.37 run claimed yet another National title, and Kelley and Murphy held on for 2nd and 3rd, respectively.

1/10 A-MAINS

The 1/10-scale Stock program was next. There were a few nervous drivers in this group, as shown by the huge pileup in turn 1! Things started to settle down, and Tim Holland, Mark Johnson and John Cole ran alongside each other through mid-race. The three leaders worked their way through the traffic, and Cole put a nifty move on Johnson down the back chute. With 30 seconds to go, Cole was closing on Holland until he lost it coming out of turn 2. Without losing a spot, Cole got it going again and hung on for 2nd;

"There were a few nervous drivers in this group, as shown by the huge pileup in turn 1!"

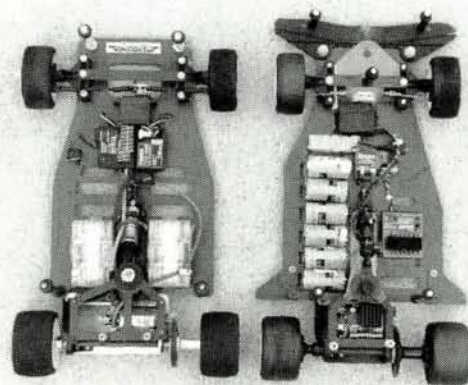
Paul Covington made a late surge to catch Johnson for 3rd. Aside from the first-turn crash, this was one of the cleanest races of the entire event. These guys put on a great show!

The stage was now set for the 1/10-scale Modified A-Main. The introductions were made, the track was cleared, and we were off...or were we? The computer gremlins struck again! Fortunately, the error was caught with only one lap down. After a few anxious moments (*déjà vu?*), the drivers were polled, and it

was decided to just re-peak (bump) the batteries and get the show on the road.

With the computer back on line (we hoped!), the cars were staged and the horn sounded for round 2.

Johnson's brilliant TQ run was for naught; he looped it in turn 2, and the entire field passed by. Dobson took the early lead with Rott, who made a great move off the start, in 2nd, followed by Lett. Dobson and Rott really started to cook, and they put some daylight between themselves and the rest of



left-turn-only (LTO) chassis that was used by all Team Triad drivers and "sneakered" with staggered radials.

Motion Competition Accessories (MCA) of Panama City, FL entered the tire wars with its composite version of a radial. MCA's sales manager, Jim Breland, indicated that the results of initial tests of the tires' wear, durability and speed were positive, and the tires were well-received by amateurs. MCA caps were used on four of the stock A-Main competitors—a very respectable showing for the new kids on the block. Could this be our sport's version of the Goodyear vs. Hoosier tire war?!

As for our West Coast pals, Associated introduced its oval version of the 10L. Cliff Lett explained that the body was designed around GM's racing version of the Chevy Lumina. Being a true 1/10

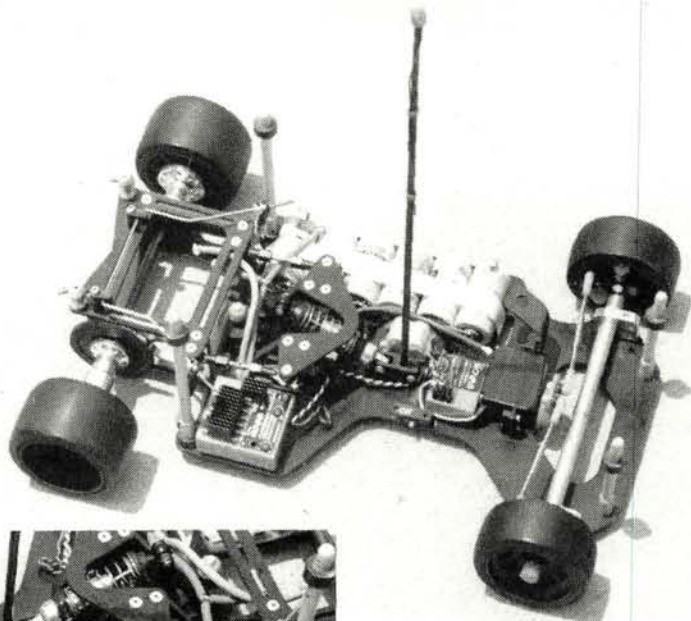
The first major outdoor race of the season usually brings out the factories' latest efforts, and this year, the Nats was no exception. Here's a brief rundown of what was new in Atlanta.

This year, 1/12-scalers could try a variety of tire compounds. In addition to the standard foam tires, TRC introduced its 1/12-scale version of the popular Morton Radial (cap) tire that was first used in the 1/10-scale ranks at last year's Peachbowl. TRC also had its version of a



Clockwise from left: ■ The original RC10L on the left is substantially wider than the new superspeedway version driven by Cliff Lett (right). ■ Without their bodies, the difference between the stock and superspeedway versions of the 10L are obvious. Note the smaller size of the pod on the superspeedway version. ■ MCA cap tires were among the new products shown at the Paved Oval Nats. These tires are available in both 1/10 and 1/12 scale. ■ The Bolink LTO car features a new aluminum pod that acts as a better heat sink, and a steering damper that started as a pod damper.

NEW
OVAL PRODUCTS



mechanical problems. Back in the pack, Johnson started his move back to the front with a

Andy Dobson's Lynx with a TRC Super-speedway chassis modification that carries all the cells on the left.

the field.

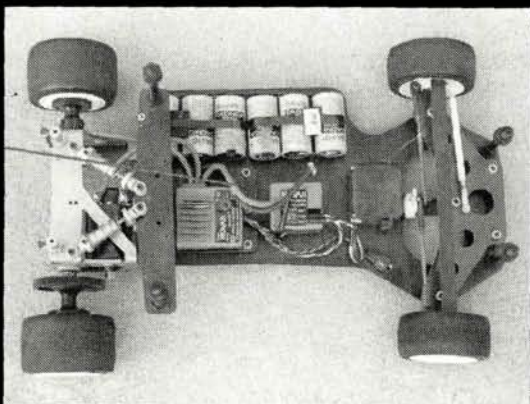
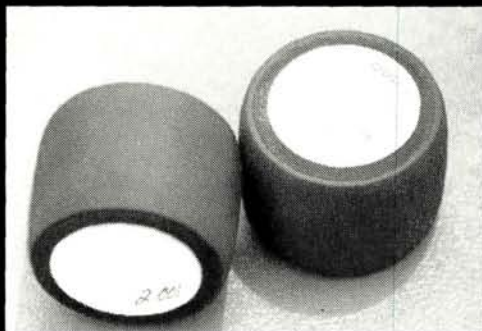
At the 1:20 mark, the number-two qualifier, Bob Light, was the first to go down with

ballistic charge through the field. Veteran Cliff Lett took up the 3rd spot and stayed

scale reproduction has reduced the body's width by almost 1 1/2 inches, and the chassis is also narrower. The theory was that, everything being equal (i.e., batteries, motors and driving ability), the car would be faster because it has less surface area to cut through the wind. The idea must have been sound, because Cliff Lett took 2nd in the Modified A-Main—on a track with short straightaways that handicapped the car's potential! Could this be the car to beat on the superspeedways?

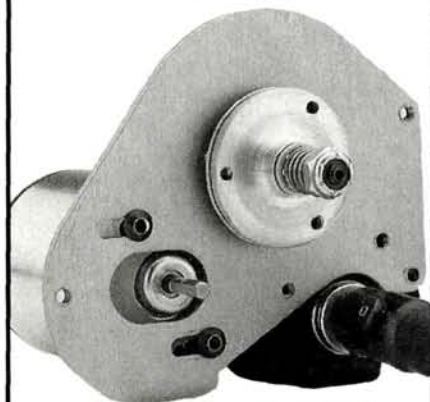
The good ol' boys from Bolink had a few tricks up their sleeves as well. Their latest version of the LTO chassis incorporates a front steering dampener and a one-piece aluminum rear pod for added stability and heat dissipation. The dampener (which is the same as the one used on the rear of their Gold chassis) helps avoid unwanted vibration and chatter on the left front tire when the car uploads in the corners.

Do you get the feeling that these cars are becoming more and more like the real things?!



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within sight of the front-runners. As the leaders, who were running bumper to bumper, came out of turn 4 (at the 2:45 mark), Dobson moved to the high side of Warren Darby and made contact. This allowed Rott to take the lead on the low side. Dobson immediately got on Rott's tail as they freight-trained around at warp speed.

With so much going on up front, it was hard to keep track of the rest of the action. The leaders were fighting for position, and this allowed Lett to run his own line and slowly move in on Dobson. The forgotten driver in all this had to be Bud Bartos. From the 7th spot on the grid, Bud worked the back markers and quietly moved up to 4th by the 3:30 mark.

Dobson worked Rott all over the track and finally made a brilliant pass for the lead on the low side of the back chute at the 3:45 mark. Rott went soft, and Lett and Bartos blew by and hooked up in their own fight for 2nd. At the buzzer, it was Dobson who won the National Championship for Team Triad with a 48/4:1.48 performance. Lett (48/4:2.23) held off Bartos (48/4:2.29), and Rott



(48/4:3.20) and Johnson (47/4:3.03) rounded out the top five.

Under a clearing sky, and with the crowd still buzzing from such a great race, John Thawley, ROAR's Administrator, called for the completion of the racing schedule. The 1/10-scale Modi-

(Continued on page 172)

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DIRT-OVAL NATS WINNERS

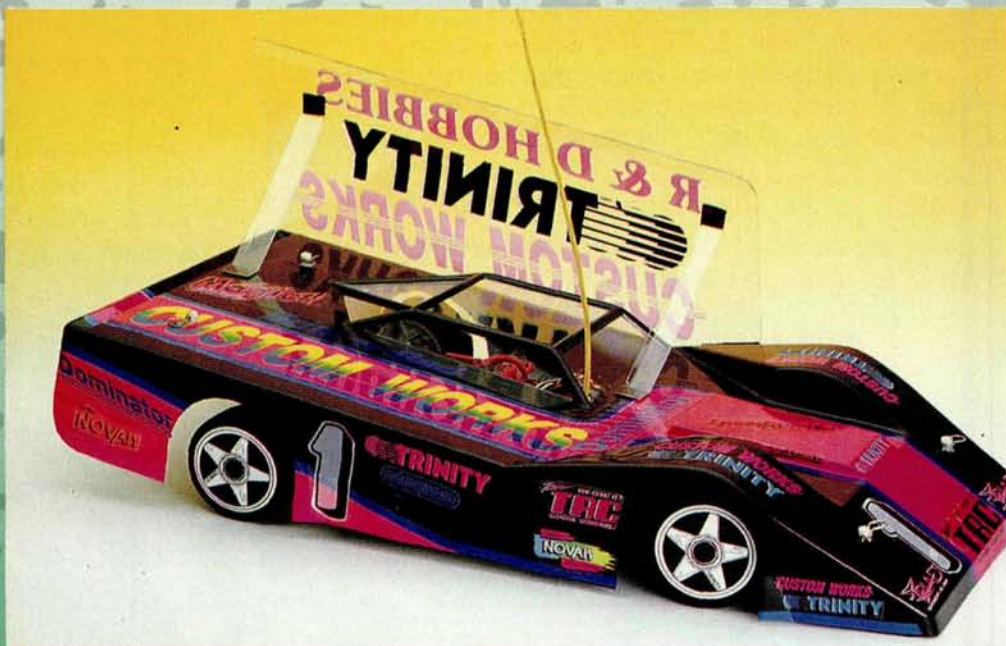
LANDGRAFF'S INTIMIDATOR



THE NEWEST MEMBERS of Team Trinity—Rob Cutman and Brian Landgraff—dominated this year's ROAR Dirt Oval Nationals and are considered to be two of the country's best dirt-oval racers. Rob and Brian both drove Custom Works® machines: the Intimidator and the Dominator, which are respected as the best dirt-oval racing machines in the business. The cars didn't win the race, though; the win was a result of the combination of car, driver skills and chassis setup.

Here's an inside look at Rob and Brian's cars and the setup they used to win the Dirt Oval Nationals. Remember that although these setups were very effective on the Nats track, they might not work as well elsewhere. If you race either one of these cars and want a good idea of where to start, read on!

RAD ROB CUTMAN'S DOMINATOR



At the time of the race, Brian Landgraaf's Intimidator was a prototype 2WD—one of the new breed of specialized 2WD dirt-oval machines. From what we've seen of the car's performance, it will probably be a threat on any oval track.

The Intimidator's features aren't very different from those of a 2WD off-road machine, but its components have been combined in a way that makes the package ideal for dirt-oval racing.

Its features include:

- 4W independent suspension
- lightweight, oil-filled, coil-over shocks
- graphite chassis plate
- graphite shock towers
- adjustable upper links, front and rear

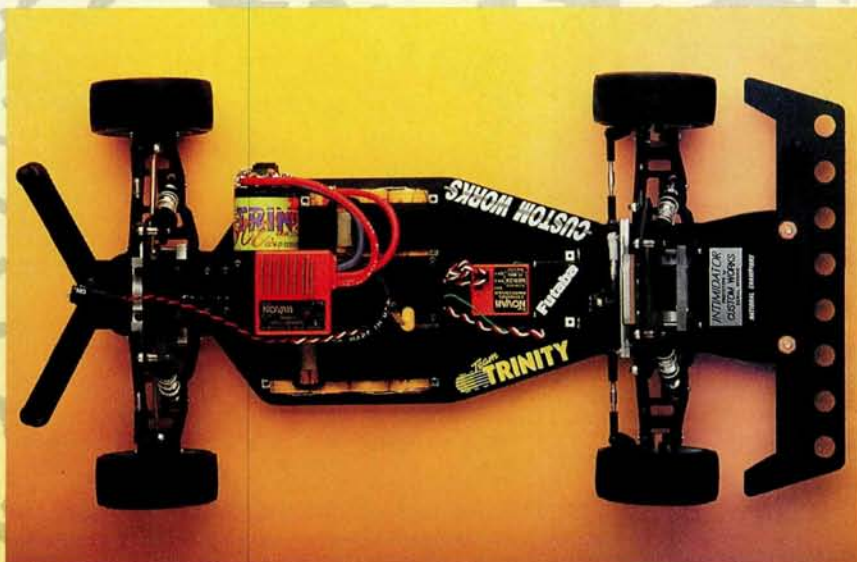
- rack-type steering mechanism
- ball differential
- chain-drive transmission (the Custom Works "trademark")

The suspension uses Custom Works no. 1400 soft suspension springs and Delta-type, oil-filled shocks; the rears were filled with Robinson Racing's* 60WT synthetic oil, and the fronts with 50WT oil. To power the Intimidator, Brian used Trinity's* Pushed Cells and a Trinity, 12-turn,

double-wind motor (called the "Godzilla"). A Novak* T-1X (modified to use only three wires instead of the standard four) transmits the power from the batteries to the motor.

The control system is the

Although the only feature the Intimidator shares with the Dominator is the 64-pitch, spur-gear, chain-drive unit, the family resemblance is easy to see. Although the 2WD Intimidator does have a rear ball diff, it's still a study in simplicity.



As its name suggests, the Custom Works Dominator is one of the dominant forces in 4WD dirt-oval racing, and its performance at this year's ROAR Dirt Oval Nats was no exception to this. In the hands of Rob Cutman, the Dominator scored a decisive win in the 4WD Modified Class.

Rob's Dominator is very much like the Dominator you can buy at any hobby shop, but to reduce weight, the car underwent some minor machining.

The Dominator's features include:

- 4W independent suspension
- lightweight, oil-filled, coil-over shocks

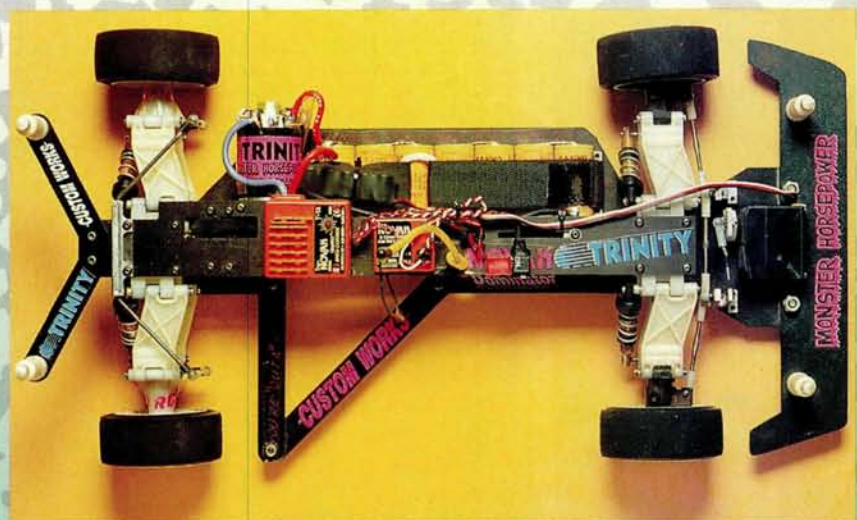
- graphite upper and lower chassis plates
- chain drive
- nylon upper and lower suspension arms
- nylon bulkheads, front and rear.

For the Dirt Oval Nationals, Cutman used Robinson Racing's synthetic 50WT oil in the rear shocks and 40WT in the front shocks. Both the front and rear shocks used the no. 1400 Custom Works soft springs. The new upper and lower arms to which the shocks are attached are from Custom

Works. Their dimensions are similar to those of the arms included on the car originally, but they have an "X" molded in on the top and bottom, and this makes them more rigid.

Providing power for Cutman's Dominator is a Trinity Pushed 7-cell pack and a 12-turn, double-wind

When it comes to 4WD dirt oval, the Dominator is still the "master of disaster." Much of its success results from its simplicity. At the Nats, Rob Cutman used Custom Works no. 1400 soft springs, Robinson Racing 50WT shock oil in the rear and 40WT in the front. Note the rear sway bar.

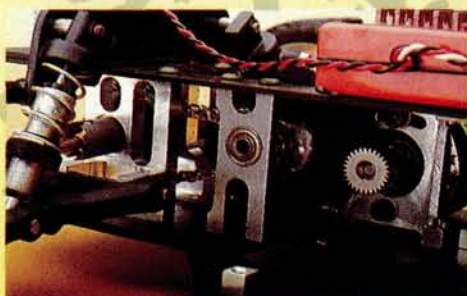


LANDGRAFF'S INTIMIDATOR

■ **Top:** On the Intimidator, a more balanced cell arrangement is called for. Three cells and the motor ride on the left (instead of having all the cells on left, like in the Dominator).

■ **Middle:** The Intimidator's small diff chain is driven by a spur and pinion. This simple system causes very little drag.

■ **Bottom:** Like its 4WD cousin, the Intimidator uses Delta shocks on all corners. Landgraff's Intimidator uses Custom Works no. 1400 soft springs.



popular KO Propo* EX-1, using a Novak mini receiver and a Futaba* S132 servo. To stick the car to the ground, Brian used the new TRC* dirt-oval cap tires, or TM radials (yes, cap tires on dirt!). Finally, the Custom Works no. 9003 Rocket Wedge body covers the chassis.

By the time you read this, the production car should be available, or at least, on its way. If you want a 2WD dirt-oval machine and decide to go with the Intimidator, what I've told you here should get you on the right path to making a smooth-running car.

Congratulations to Brian Langraff, Custom Works and Trinity—the 1990 2WD ROAR Dirt Oval Champions!

CUTMAN'S DOMINATOR

■ **Top:** The Dominator's upper and lower chassis plates are graphite, and the wide front bumper is of Kydex.

■ **Middle:** Cutman's Dominator has a row of Trinity Pushed Cells next to a 12-turn double Godzilla.

■ **Bottom:** The nylon upper and lower arms are set up for oval only, and they can't be adjusted for camber or toe-in, but they do have shock-angle options.



motor (Godzilla again!). There's also a Novak T1-X, a Novak Mini receiver, a KO Propo radio and a Futaba S131SH servo. In the rear, a heavy anti-sway bar increases stability and reduces steering sensitivity. The Custom Works Rocket Wedge body tops everything off.

Congratulations to Rob Cutman, Custom Works and Trinity—the 1990 4WD ROAR Dirt Oval Champions.

*Here are the addresses of the companies mentioned in this article:

Custom Works R/C Products, 3720 Easton Dr., Suite 6, Bakersfield, CA 93309.

Robinson Racing Products, 165 N. Malena Dr., Orange, CA 92669.

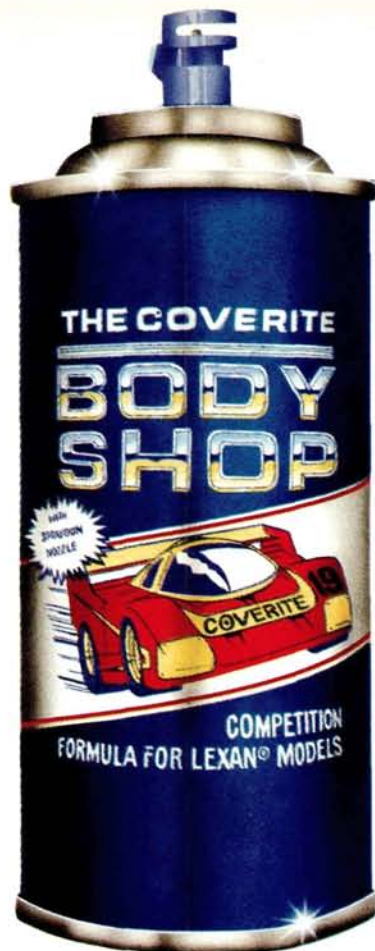
Trinity, 1901 E. Linden Ave., #8, Linden, NJ 07036.

Novak Electronics, Inc., 128-C E. Dyer Rd., Santa Ana, CA 92707.

KO Propo; distributed by Global Hobby Distributors, 10725 Ellis Ave., Fountain Valley, CA 92728.

Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718.

TRC, P.O. Box 1058, Albemarle, NC 28002. ■



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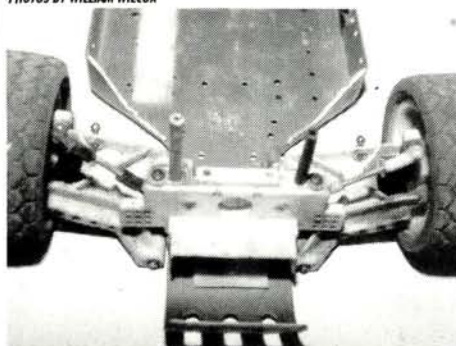
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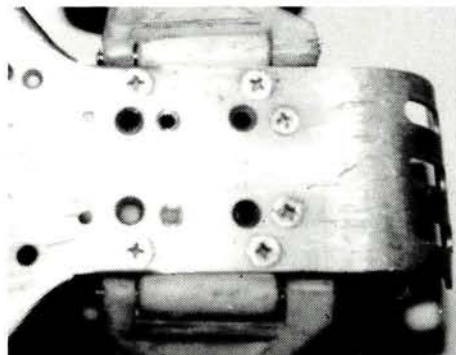
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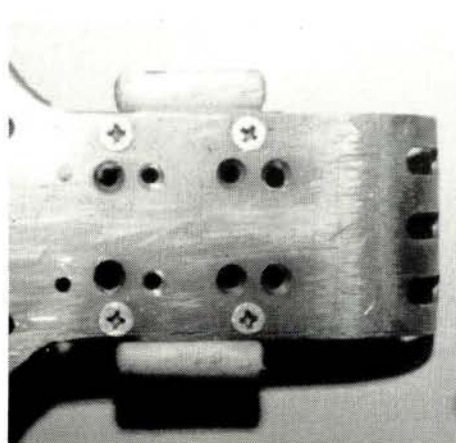
PHOTOS BY WILLIAM WILCOX



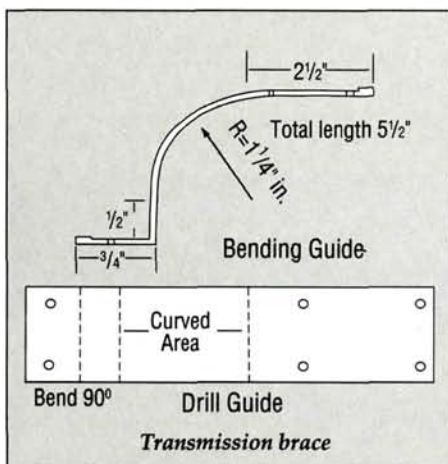
When the bulkhead and the suspension arms are reversed without reversing the suspension blocks, the car retains its stability.



This is how the underside of the car should look with the suspension blocks and the bulkhead attached for the mid-motor conversion.



To maintain the toe-in and caster, the rear suspension blocks must remain in their original position.



CENTERED ENERGY

(Continued from page 74)

At first, converting the RC10 into a mid-engine car seems straightforward: just unscrew the eight screws on the bottom of the car; pick up the entire transmission, the shock tower and the swing-arm assembly; turn it around and screw it back down. Close examination, however, revealed that toe-in and caster are built into the swing-arm hinges, so the stationary part of the hinges must not be switched side for side. Instead of removing the screws that hold the hinges, pull the hinge pins out. Next, remove the other six screws that hold the transmission and shock-tower holder; turn it around and try to put it back. You'll have to notch the shock-tower holder to make it fit between the swing-arm hinges and notch both sides of the aluminum chassis so that the motor and transmission will fit. If you try to use the existing screw holes, you'll find that they're just slightly off. Use a needle file to make the holes line up. You'll have to drill two more holes for the transmission before you screw down the assembly.

With the shock tower and transmission screwed on and the swing arms pinned in, you'll notice that the motor mount needs to be trimmed and that the car runs backwards. The motor mount is easy to take care of, but the backwards motor requires a decision. You can leave things the way they are and use a reverse-direction motor, or you can reverse the transmission.

Reversing the transmission has its advantages: it's easy to do; you now have a reason to take it apart, clean it and lube it; and if you reverse it, you won't have to buy more motors. When you reassemble the transmission, make sure you put the main shaft in so that the diff is on the right, instead of on the left.

With the car reassembled in its new configuration, you might see some torque flex in the chassis where it was notched. This may or may not be a problem, but I'm a believer in "bulletproofing" my car and leaving nothing to chance. The transmission bracket shown in the diagram and the picture make the chassis even stiffer than it was originally.

Now for the big question: was this modification worth it? Sure it was! It only took a couple of evenings, and it didn't cost anything. In racing, when all other things are equal, the car that handles the best, wins.

TRACK REPORT



ASSOCIATED

RC10B

by STEVE POND

GRAPHITE

Still diggin' gold



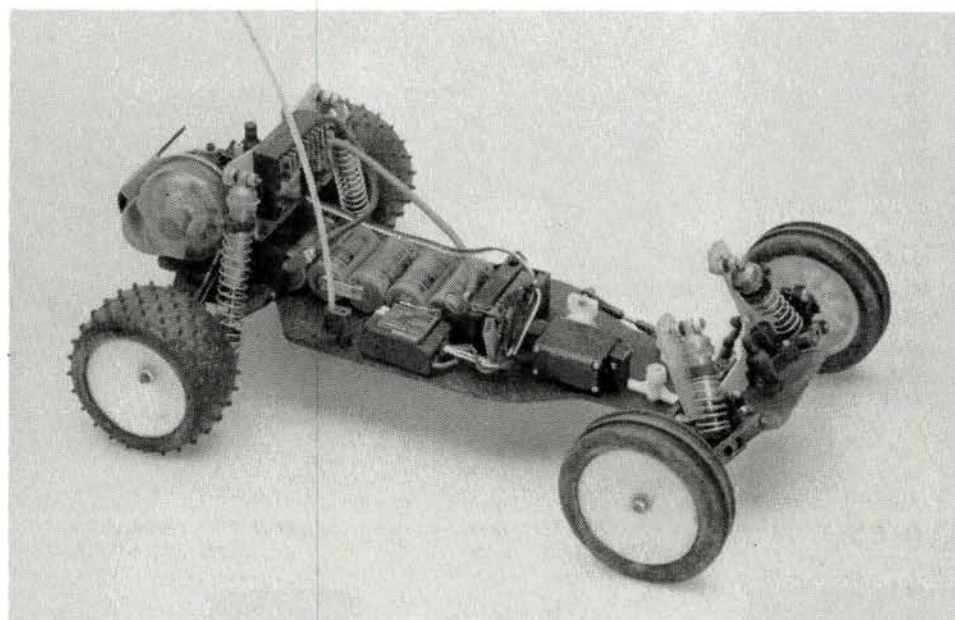
WHENEVER YOU TAKE a serious interest in a hobby or sport, you pick up certain key words right away because they're used so often. For instance, someone who likes tinkering with mechanics might come across "vise grips" or "channel-lock pliers." These aren't the actual names of the tools; instead they're trademark names for a certain brand of tool that has been established as the industry standard. Now, virtually all products that remotely resemble these tools are referred to by these trademark names.

The R/C car hobby also has its own "household names," e.g., the Ni-Cd battery (a Sanyo trademark for the nickel-cadmium cell) and the X-Acto knife (X-Acto's name for its hobby knife), but it wasn't until recently that my 4-year-old nephew convinced me there was another to add to the list: the RC10. When he walked through the door of my workshop as I was about to leave for the track, he asked, "Unckew Steve, is that yu awcee tin?" I'd never told him what it was.



The Associated *RC10 is unquestionably the most popular R/C car that has ever been introduced, and it's the foundation on which many of today's high-performance cars were built. In 1984, when the original version hit the hobby-shop shelves, it blew the competition away and never looked back. Only recently, with the introduction of the JR-X2, did the RC10 have a real competitor. Now enthusiasts—racers and non-racers—are flocking toward the JR-X2. It's a good car that can be very competitive, even if your assembly skills are mediocre. What about the RC10?!

This latest version of the RC10—the RC10 Graphite—is based on the original design, but there are minor changes that will make it very competitive with the JR-X2 or the new Ultimas. Granted, this isn't a car you can throw together and have run very well, but with a little work, it's every bit as competitive.



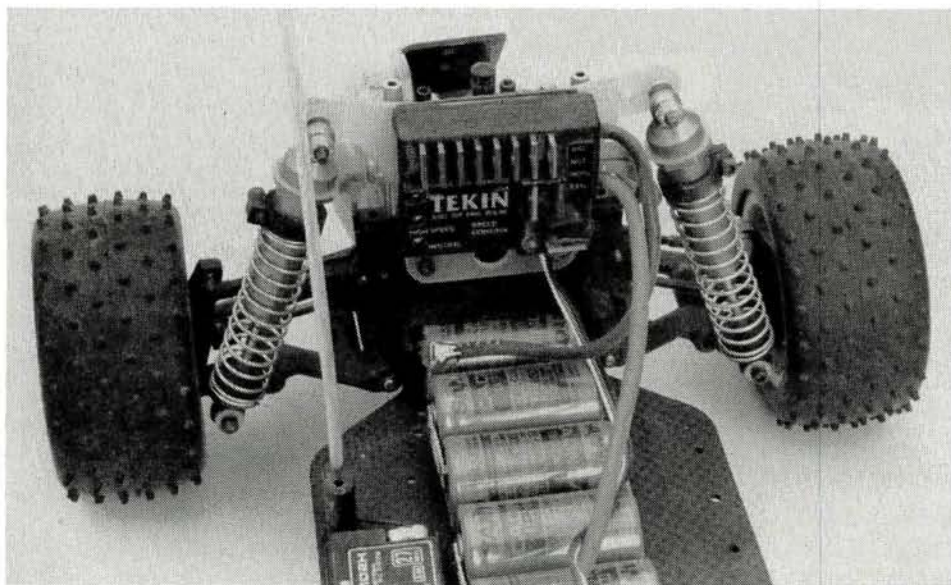
ciated 10L on-road car. This chassis not only saves a little weight, but it also greatly increases rigidity. Other additions include: longer front A-arms for a wider front stance; a new front shock tower to

ASSEMBLY

To assemble the RC10 Graphite, you follow the same basic steps as with the first RC10; the new parts have been "plugged into" the instruction manual. The front suspension and steering assembly are the first components to be attached to the chassis. These steps are pretty simple, but you should pay close attention to how the parts go together. When attaching the A-arms to the suspension mounts, make sure there's no "sticking point" when you move the arms upward and downward. If the arms don't fall down on their own when you let go of them, it would be a good idea to run a 1/8-inch drill bit through the arms where the pins go through to ensure there are no burrs that cause the minor binding.

The steering arms require a little more attention than usual because, with the new in-line steering blocks, the kingpin passes through the axle. This design is considerably better than the original because the axles can't be pulled out, but there's metal-to-metal contact with the new axles, which must work smoothly. If there are any burrs, again, use a 1/8-inch drill bit or a small round file to take care of them.

I was a little disappointed to see that the steering system still uses the servo-saver assembly that had caused me such trouble in the past. The servo-saver works very well for a limited time, but as soon as the plastic it's made of becomes brittle, the servo-saver snaps. Sure, they're inexpensive to replace, but they have a tendency to break at the worst time (Murphy's Law of R/C!).



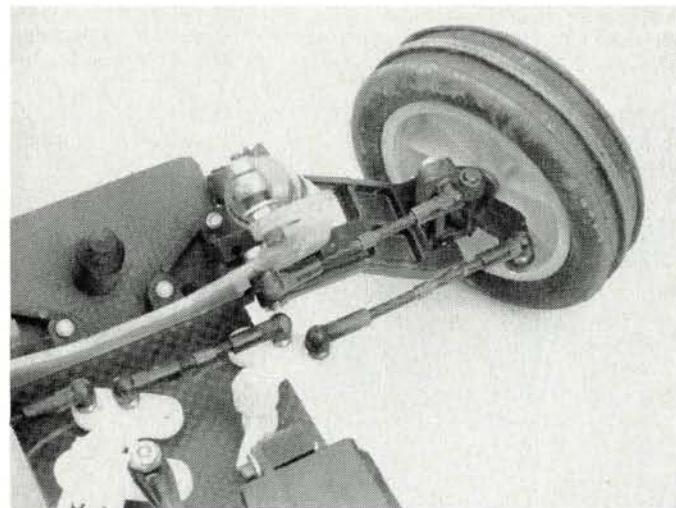
There was no problem fitting the somewhat large Tekin 700 onto the rear shock tower. Front battery holder had to be moved forward for side-by-side cell arrangement (see text).

THE KIT

The kit has many of the parts we're used to seeing on the original RC10, e.g., 4W independent suspension with adjustable upper links; aluminum oil-filled, coil-over shocks; turnbuckle linkage; in-line front axles and steering blocks for more responsive steering; universal-joint drive shafts in the rear (to reduce friction); and new, "black" idler gears in the transmission (they're much stronger and smoother than the original gears).

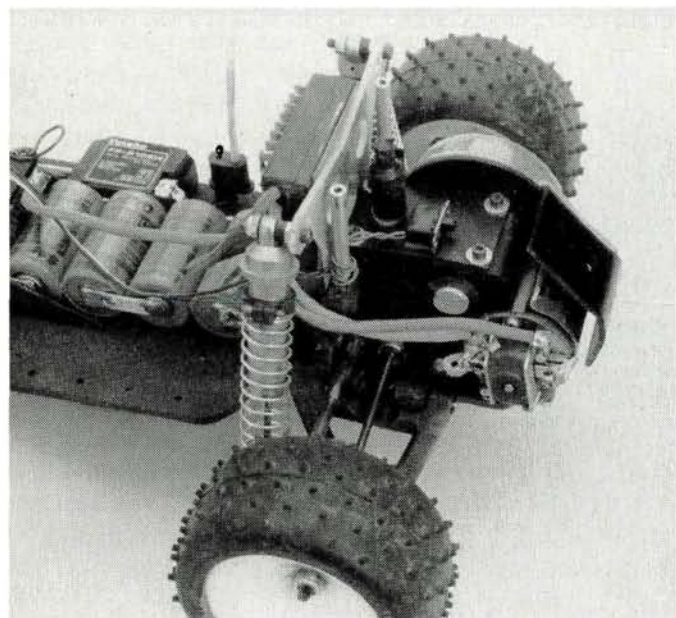
As the name suggests, this new version of the RC10 includes a graphite chassis made of the same composite as the Asso-

accommodate the changes in suspension geometry and allow for progressive dampening (depending on the mounting position); turnbuckle linkage; in-line front axles and steering blocks for more responsive steering; universal-joint drive shafts in the rear (to reduce friction); and new, "black" idler gears in the transmission (they're much stronger and smoother than the original gears).



The Graphite version has the same rake angle as the original RC10; the shock towers are more adjustable; the A-arms are longer; and the turnbuckles are standard.

The transmission is next: pay very close attention to it to ensure the best possible operation. Of course, you could pursue an alternative by picking up any one of a number of after-market transmissions that are available for the RC10 (they all work well), but I've found that, with a little work, the stock transmission is tough to beat.



Pro-Line wheels and Red Pro 30 (no. 7030) tires were used. Polycarbonate primary drive cover allows quick gear-mesh inspection. Has the same aluminum adjustable shocks as the original RC10.

Without having the transmission in your hand, it's a pretty tough mechanism to explain, but I'll give it a shot. There's a spine plate in the tranny that serves as a mount for the drive gears (which protrude from the bottom transmission to drive the dogbones) and the idler gears (which

transfer the power from the layshaft to the drive gears). For ultra-smooth operation, start by slightly (and I mean slightly) elongating the hole for the drive-gear pivot in the spine plate (at the point opposite the idler-gear pivot hole) with a round file. This will allow a little more clearance between the idler and drive gears when assembled.

Before installing any of the gears, I used a Dremel* no. 425 rubberized grinding wheel (cut to the shape of the teeth) to polish each tooth in the tranny (both the layshaft gears and the drive gears). First, I ran the Dremel wheel across the edge of each tooth at a 45-degree angle to remove any burrs. Then I ran the wheel very lightly across the teeth to give them a nice polish. Make only a few light passes across the teeth, because the gears are case-hardened, and it shouldn't take much to get the job done. Too much polishing takes the hard layer of material off the gear and accelerates wear, and it might also deform the teeth.

With the gears installed in the transmission housing and the final assembly of the diff completed, you should be able to blow on the spur gear and make the transmission spin. If it doesn't, go back in and see what's binding. The smoother your transmission, the faster you'll go.

To further smooth the diff operation, I also installed a Jammin' Jay* diff kit. I won't go into detail about what's involved in its installation; it's very easy. It produced the smoothest diff I've had in my five years of racing the RC10. The trans-

(Continued on page 128)

RC10 GRAPHITE

Type Off-road
Scale 1/10
Sug. Retail Price \$329.95

DIMENSIONS:

Overall Length 15 inches
Width 9 inches
Height 7.56 inches
Wheelbase 10.75 inches
Front Track 8 inches
Rear Track 7.75 inches

WEIGHT:

Gross (w/bat.) 3 pounds, 4 ounces

BODY:

Type Single-seater off-road
Material Polycarbonate

CHASSIS:

Type Parallel-shaft
Material Graphite

DRIVE TRAIN:

Primary Gear
Transmission Gear
Differential Ball bearing
Bearings/Bushings Ball bearing

SUSPENSION:

Type (f/r) Single A-arms with upper control link
Dampening (f/r) Oil-filled shock absorbers

WHEELS:

Front: Type One-piece nylon
Dimensions (DxW)75x2.25 inches
Rear: Type One-piece nylon
Dimensions (DxW) 1.75x2.25 inches

TIRES:

Front Ribbed
Rear Mini-spike

ELECTRICS:

Motor 540/05
Battery 6-cell stick pack
Speed Controller Electronic

OPTIONS AS TESTED:

Jammin' Jay's RC10 diff kit; Andy's red A-arms; Tekin 700 ESC; Reedy Blue Dot motor; Trinity Pushed SCRs; Parma dust cover; Futaba Magnum Jr. with S-132H servo and R102H receiver.

COMMENTS:

The RC10 Graphite is a very competitive car if time is taken to ensure all parts move freely. It requires more than average time at the workbench to get the parts running smoothly, but the result is a rugged car. After-market parts are abundant, but I recommend that you keep as close to the original design as possible. The Jammin' Jay diff kit is an excellent addition, but apart from that, the Graphite fares well enough with the factory parts.

* not included

TRAXXAS RADICATOR

(Continued from page 24)

The red dye I used for some of the parts turned them pink, and Leslie really liked that!

I know the track, so I set up the Radicator's suspension with my usual shock-oil weight and gear ratio. My daughter ran the Radicator while I used the camera.

It just flew over the jumps and landed cleanly. Leslie had run my Bullet, and she had no problems with the Radicator's handling. Being lighter, its performance over the jumps, moguls and tight corners was great. It flew! (The new Speedworks* Joel Johnson stock motor, the Bullet matched SCR battery pack and the Traxxas XL-2 speed controller helped just a little!) Traxxas has produced a new graphite chassis and graphite front and rear shock towers for the Radicator and the Bullet, so I'll use all the new hyper-go-fast parts to see if I can grab first place in the A-Main.

*Here are the addresses of the companies mentioned in this article:
Traxxas Corp., 12150 Shiloh Rd. #120, Dallas, TX 75228.

Bullet Racing Products, 14435 Tomball Pkwy., Houston, TX 77086.

KO Propo; distributed by Global Hobbies, 10725 Ellis Ave., Fountain Valley, CA 92728.

Speedworks; distributed by Trinity, 1901 E. Linden Ave. #8, Linden, NJ 07036. ■

SCOPING OUT

(Continued from page 30)

capacitors across the motor. The instructions clearly state that you need to install three .1-microfarad caps and one 47-microfarad cap. Novak even provides a first-class picture that shows you where to put them!

The blown FET was the result of something known as back EMF. This simply means that when a motor is coasting, it acts as a generator and produces a voltage. To make matters worse, the brushes usually arc and spark under heavy braking. Added to the generated back voltage, this noise can produce a voltage that's high enough to damage the braking FET. If you install all the capacitors (as Novak instructs), you not only avoid the possibility of radio glitching, but you also reduce the chance of causing "over-voltage" damage to the braking

FET. Remember, most electronic SCs are "bulletproof," but few are idiot-proof!

With the repaired controller back in the car and all four caps installed, the brakes worked! Brake-jamming, tire-sliding and 180-degree turns were a lot of fun!

CONCLUSION

This is a first-class speed controller. Novak claims that the NESC-T4's price/performance ratio makes it an excellent entry-level racing SC—and I agree! The controller is solid and has a partially sealed case and easy-to-adjust pots. Its "on" resistance is higher than that of its big brother, the NESC-T1, but it's by no means shabby.

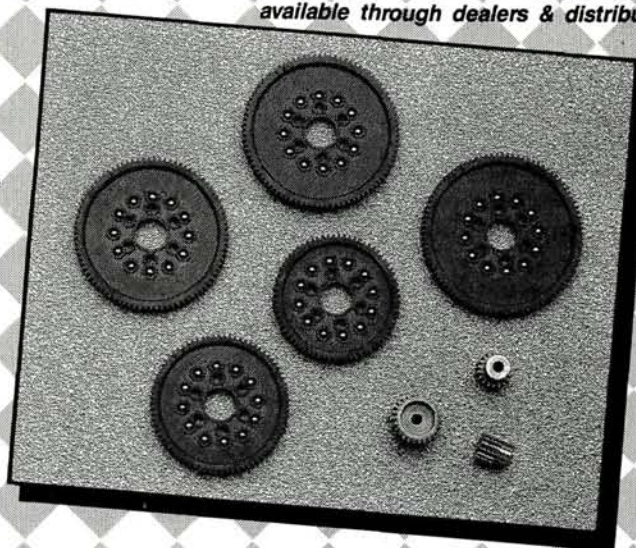
If you want to blow the competition away at local backyard races, or you run in a class that doesn't require all-out raw speed, you probably couldn't tell the difference between the NESC-T4 and a more expensive controller. In fact, if the kind of driving you're involved with permits you to run the supplied stock connectors, the NESC-T4 will fill the bill. As time goes on and

(Continued on page 90)

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SCOPING OUT

(Continued from page 86)

you want more performance, you can always replace them with Litespeed connectors and make the wires as short as possible. If you check my resistance numbers, you'll see that this will eliminate half of the "on" resistance. Good connectors and thicker, shorter wires are the cheapest hop-up trick that I know.

Remember: if you replace the connectors, be careful not to swap their polarity. Novak warns that if you do make a mistake when replacing the stock connectors, they'll have to charge you to straighten out the mess, but they try to be up-front and fair. When Novak returned my SC, they sent me a question-and-answer sheet that read:

"Q. Will my T4 warranty be void if I cut off the power plugs?

"A. Because the plugs on the T4 have been installed for entry-level drivers (and we don't encourage plug changes by novices), if damage to the ESC is caused by the changing of the power plugs, we'll repair the unit, but the cus-

tomers will be charged. If we find a defect that's unrelated, we'll repair the unit for free."

If you do a good job of installing the NESC-T4, use all the provided motor caps, and install the heat sinks, you should have a high-quality speed controller that's at home in most $1/10$ - or $1/12$ -scale cars or trucks. Goodbye, Model T Ford; hello, speed demon!

**Here's the address of the company featured in this article:
Novak Electronics, Inc., 128-C E. Dyer Rd., Santa Ana, CA 92707.*

KYOSHO TURBO BURNS

(Continued from page 38)

the standard Burns and with a number of other gas-powered cars, but I was walking into this one cold. I managed to do pretty well considering the company I was in, and since the car was bone stock, I was even more impressed.

The Turbo Burns' performance was staggering. There's no comparison between a $1/10$ -scale buggy and a nitro-burning $1/8$ -scale car. There are no batteries to go soft at the end of the run, so you

can bomb around the track until you run out of fuel. Power delivery is awesome, and to make sure I wasn't the only one who was overwhelmed, I recently put the car into the hands of some pretty talented drivers, and they soon had that open-mouth look, too.

Were there any problems with the car? Sure. With any car, something is bound to go wrong at some point. The disc brake seems to be a weak point in the car's design. Although I still use the brake that came with the kit, I've seen others go through them rapidly. The key is to take time to adjust it properly. After a while, the gears in the differential showed signs of wear and eventually failed. This isn't all bad, however, because they're inexpensive to replace, and if they hadn't let go, perhaps something more expensive would have.

I could go on about this car for hours. The Turbo Burns is as tough as they get; in fact, in collisions, nothing has yet broken. Unlike when running an electric car, you have no worries about how long your batteries will last, and it doesn't cost much to keep the car running. The car puts out much more power than you can ever use,

(Continued on page 124)

REEDY Modifieds

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(Graph shown represents actual core readout of Reedy Modifieds motor.)

CURRENT

TORQUE

POWER OUTPUT

OVERALL EFFICIENCY



BLOOMINGTON GOLD



GLAMOROUS GLASS



b y J A Y B O W M A N

CHECK IT OUT! It's the largest Corvette display in the universe—the 18th Bloomington Gold Corvette Show. Corvettes deluged the McClean County Fairgrounds in

Bloomington/Normal, IL, for three days of sacred 'Vette worship. Every corner of that city was filled with 'Vettes. Every restaurant, every mall, every motel crib—even the dorms at Illinois State University—were wall-to-wall 'Vettes. More

than 400 Corvette vendors hawking everything from knickknacks to hub caps made the scene, and there were hundreds of display 'Vettes—vintage ones, street rods, road racers and plenty of passenger rides.

R/C Corvette Challenge



R/C Corvette Challenge



Rodney and his brother Darryl and his other brother Darryl.

on the flooded track. With the track in ragged shape, it was off to the 'Vette show to slosh around the heavy metal.

There was a swap meet, a show & sell, an auction, restoration workshops and a Silver Salute showcase to the 25th anniversary of the '65 Corvette. Rare split-windows, Indy pace cars, ZR-1s and Callows were definitely with it, and a Rick Mears Special Edition ground-effects kit from Shinoda/Williams demo'd some eye-catching lines.

A cruisin' posse of more than 600 'Vettes road-tripped through the Land of Lincoln countryside. This road-tour show, which entertained thousands, provided a line of Corvettes more than 45 minutes long. So many 'Vettes, so little time!

Meanwhile, the R/C clubbers were freaked back at the mud bog, but they ground it up and rolled it down, pushing back qualifiers for a few hours of practice. With MC "Chill E.Z." Roy West (of the R&R Hobby crew) on the mike, we were ready for four rounds of straight-up qualifying.

A heated rivalry between the club's home boys and the Quad City Outlaws never de-

teriorated to name-calling, but there was plenty of pre-race baiting. Club President Paul Reeves (of Pet and Hobby—"How much for that R/C rabbit in the window?") told his troops to let the ground-pounding begin. Five classes of Corvettes and a Sprint-Car Class struggled against a cold Great Plains wind. The track was still drying out and choppy, so handling changed during the first three rounds, and this was a real challenge for the participants.

Sunday brought heat, and the clay was baked and cracked for the final qualifier, so we knew that all records would fall. But before the hip-hop jammin' came Concours.

Although all the Corvette bodies were hype, it was the sprint-car rigs that collected the gold. Doris Schrock's fresh 1st-place sprinter featured a detailed driver and lettering from the shop that cut them for the full-scale car her conversion replicated.

STOCK STREET 'VETTE

For aficionados, only realistic street Corvette bodies were allowed. Wings and spoilers, which detract from a car's lines, definitely weren't permitted. This class used hand-out Race Prep stock motors and a collection of 'Vette bodies from Parma's '63 to Bolink's '88. Ivan "Ironman" Taylor, who had long-hauled all the way from Michigan's Upper Peninsula, TQ'd in this event. His JR-X2 was outfitted with a McAllister 'Vette body, and he was the only driver who picked up 22 laps!

In the feature, Taylor's luck was terrible, and his start was poor. Winner Tom Hoeg's JR-X2 captured the lead for all but two laps, and Taylor had to be satisfied with the track record and 2nd place.

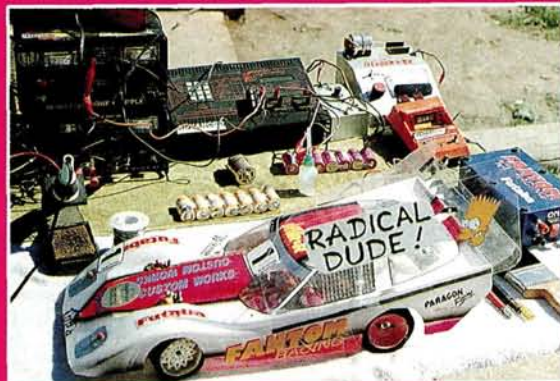
STOCK OPEN CORVETTE

Here again, we saw handout stockers, but this time, any Corvette body in full, aerody-



Not only did Raymond Wiest TQ in 2WD Modified, but he also helped to set up the PA system. What a sportsman!

R/Cs were there, too! The Bloomington Gold Cup R/C Challenge drew racers from throughout the Midwest to compete in a Corvettes-only dirt oval. The Midstates R/C Car Club and Bloomington's Holiday Park boast a gargantuan, banked, dirt oval with 330 feet of groove in an Indy-style configuration. The 200 expected entrants didn't materialize because of the torrential rain, which allowed only mud-bus and U-boat practice



Bart Simpson's Bolink Outlaw Corvette

namic, polycarbonate regalia was allowed. Bodies included McAllister, Andy's, Premier and Bolink Outlaw Corvettes. Their wedges and wings provided only a limited advantage. TQ Phil Goginsky barely wheeled his hyped RC10 to 23 laps and some change, and Milton Spidle's RC10 was just a few pennies behind.

Hoosier Goginsky wasted

A cruisin'

posse of more than 600 'Vettes road-tripped through the Land of Lincoln countryside.

no time with an excellent run in the feature, wire-to-wire in 1st place and a new track record (never a bobble!). He never looked back! His lap times were a consistent 10.9 seconds, but he felt the heat of the five cars just behind him. Russ Williamson held 2nd spot from the "get-go" and just nicked it at the wire—beating Spindle by .003 second. (Transponder positioning accounts for this.)

SPRINT CARS

Sprint cars gave us a break from the all-'Vette weekend. Bill Murphy put the CAM hammer down and came up with 25 big ones for TQ (a lap up on the others and a new track record). Unfortunately, in the A-Main, his horse didn't leave the gate, and he couldn't escape from the back of the pack. Meanwhile, Jim Schrock was away with his Fantom-powered Big Boys' Toys conversion, but he had to duel it out with the open wheels of Fantom-teammate

(Continued on page 160)

4WD OPEN

FIN.	QUAL	NAME	CAR	ESC	RADIO	MOTOR	BODY
1	3	Mike Weast	Dominator	Novak	KO Propo	Raceprep	Andy's
2	2	Jim Hock	Dominator	Novak	Kraft	CAM	Premier
3	5	Jay Bowman	Dominator	Novak	Futaba	Fantom	Andy's
4	7	Terry Dines	Dominator	Novak	Futaba	Fantom	Andy's
5	9	Dan Douglas	Schumacher	Novak	Futaba	Reedy	Andy's
6	6	Jay Billingsley	SRP-1	Novak	Futaba	Revtech	Premier
7	10	John Wright	Radiant	Novak	Futaba	Revtech	Bolink
8	8	Ted Lundy	Dominator	Novak	Futaba	Trinity	Premier
9	4	Ron Gould	Dominator	Tekin	Futaba	Twister	Bolink
10	1	Rod Galloway	Dominator	Novak	KO Propo	Revtech	Premier

4WD STOCK

FIN	QUAL	NAME	CAR	ESC	RADIO	BODY
1	1	Jay Bowman	Dominator	Tekin	Futaba	Andy's
2	3	Dan Douglas	Slingshot	Novak	Futaba	Andy's
3	2	Ron Gould	Dominator	Tekin	Futaba	Bolink
4	5	Dean Howard	Yokomo	Novak	Futaba	Premier
5	6	Terry McKillip	Maxxum	Novak	Futaba	Parma
6	7	John Swanson	Optima	Novak	Kyosho	Andy's
7	4	John Palmer	Slingshot	Tekin	Airtronics	Andy's

2WD OPEN

FIN	QUAL	NAME	CAR	ESC	RADIO	MOTOR	BODY
1	5	Phil Goginsky	RC10	Novak	KO Propo	Losi	McAllister
2	9	Paul Reeve	JR-X2	Novak	Futaba	Reedy	Premier
3	1	Ray Weast	Dieter-prep	Novak	KO Propo	Raceprep	Andy's
4	8	Russ Williamson	JR-X2	Novak	Airtronics	Reedy	Premier
5	2	Dave Peters	JR-X2	Tekin	KO Propo	CAM	Premier
6	4	Jay Bowman	Mendez	Novak	Futaba	Fantom	Andy's
7	6	Brad Ryan	JR-X2	Novak	Futaba	Revtech	Premier
8	7	Chuck Cook	JR-X2	Novak	Futaba	CAM	Andy's
9	10	Rick Sanders	JR-X2	Novak	Futaba	CAM	Andy's
10	3	Jayne Whitlow	JR-X2	Novak	Futaba	Reedy	Premier

2WD STOCK

FIN	QUAL	NAME	CAR	ESC	RADIO	BODY
1	1	Phil Goginsky	RC10	Novak	KO Propo	McAllister
2	3	Russ Williamson	JR-X2	Novak	Airtronics	Premier
3	2	Milton Spidle	RC10	Novak	Futaba	Premier
4	10	James Koets	JR-X2	Novak	Futaba	Bolink
5	6	Bill Murphy	JR-X2	Novak	KO Propo	McAllister
6	4	Leo Mills	JR-X2	Novak	KO Propo	Andy's
7	5	Mike Watson	RC10	Novak	KO Propo	Bolink
8	8	Tom Fitzgerald	RC10	Novak	KO Propo	Bolink
9	9	Chuck Cook	JR-X2	Novak	Futaba	Andy's
10	7	Duane Baker	JR-X2	Novak	Futaba	Bolink

STREET STOCK VETTE

FIN	QUAL	NAME	CAR	ESC	RADIO	BODY
1	4	Tom Hoeg	JR-X2	Novak	KO Propo	'88 Bolink
2	1	Ivan Taylor	JR-X2	Tekin	Futaba	McAllister
3	6	Jason Haab	JR-X2/10	Novak	Futaba	Parma ZR-1
4	3	Brian Bagley	JR-X2	Novak	Futaba	'63 Parma
5	7	Vernon Mast	RC10	Novak	Futaba	'63 Parma
6	8	Justin Zimmerman	JR-X2	Novak	Futaba	McAllister
7	2	Dan Robinson	JR-X2	Novak	Futaba	'88 Bolink
9	9	Will Thomas	RC10	Novak	Futaba	'63 Parma
10	10	Carl Seils	RC10	Aristo	Aristo	Parma ZR-1

OUTLAW SPRINT CARS

FIN	QUAL	NAME	CAR	ESC	RADIO	MOTOR	BODY
1	5	Jim Schrock	RC10	Tekin	Futaba	Fantom	Big Boys
2	6	Greg Garren	RC10	Tekin	Futaba	Fantom	Big Boys
3	7	Jayne Bland	RC10	Tekin	Futaba	Twister	American
4	2	John Wright	RC10	Novak	Futaba	Reedy	Wolf
5	4	Doris Schrock	RC10	Tekin	Futaba	Revtech	Big Boys
6	1	Bill Murphy	JR-X2	Tekin	Futaba	CAM	Ascot
7	10	Tom Crose	RC10	Novak	Futaba	Fantom	Magnum
8	9	Ivan Taylor	JR-X2	Tekin	Futaba	Losi	Ascot
9	3	Dave Peters	JR-X2	Tekin	Futaba	CAM	Ascot
10	8	Tim Fitzgerald	RC10	Novak	KO Propo	Trinity	Ascot

Note: All other bodies used were Corvettes.

—CAN'T TOUCH 'DIS!

Trinity's New Tamper- Proof Stock Motor

by STEVE POND

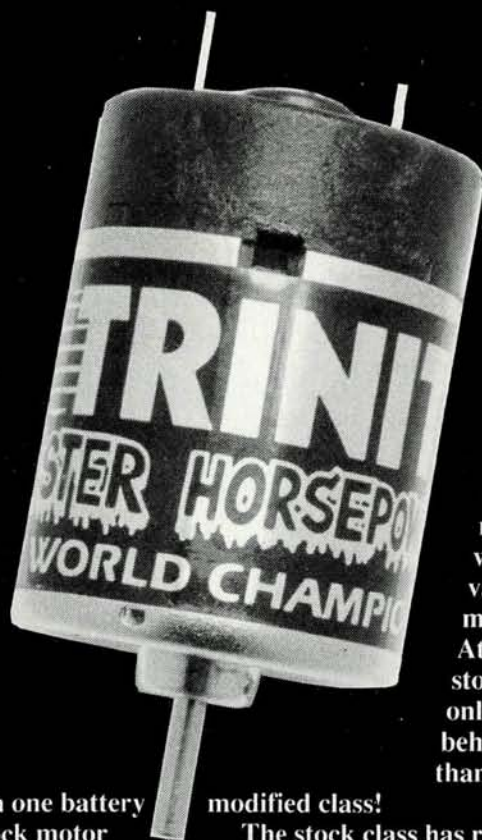
The Trinity Stock motor's new, sealed-endbell design prohibits tampering. This should bring stock racing back to what it used to be—a driving contest.



RACING WAS GREAT when you went to the track with one battery in your toolbox, and the simplest stock motor had a closed endbell so nobody could alter its performance. Competition was very close, and it was individual driving skill that made the difference between winning and losing.

Racing has come a long way since then; advances in technology push our cars to faster speeds every time they hit the track. Not only are today's cars more sophisticated, but the motors—especially in the stock class—squeeze out more horsepower. The original reason for switching from closed-endbell to open-endbell motors was to get more life out of the motors. With open endbells, racers can replace worn brushes, use different springs and perform minor tuning for changing track conditions.

This worked without a hitch until some manufacturers exploited a loophole: the amount of timing on these motors wasn't regulated! Thus began the "Motor-of-the-Week Club," in which the newest motor with the most timing would make previous models obsolete. The new open-endbell design had larger vents on the bottom, and this allowed



experienced racers to get inside and tweak their motors to advance the timing further. The "stock" class became just another division of modified racing where a number of variables determine a motor's performance! At many tracks, the stock-class record is only a fraction of a lap behind—if not faster than—that of the

modified class!

The stock class has reached the point of absurdity: at many large scale events, racers buy three stock motors, tweak them all, and only keep the good one. At the end of the day, they throw it away!

I thought that the stock class and the motors used in it were designed for newcomers who didn't yet have the driving prowess to run in the modified class. The cost is supposed to be cheaper, and the speeds are allegedly slow enough for even those with marginal skills to control the cars. Those of us who have raced in the stock class know better!

The most significant introduction to stock-class racing is scheduled to be released in early September by Trinity Products. It's a new motor that's built to ROAR's 1991 proposed specifications, and the beauty of it is that it can't be tampered with!

The motor's name—Hammer Time Stock Motor (followed by "Can't touch this")—embodies the design's intention. You can't crank this motor without damaging the wires or the motor can. Its new design places the brushes and hoods inside the endbell, and this further evens the competition by not allowing spring or brush changes. The armature is built to meet ROAR specifications, which state that a motor must be 27 turns of 22-gauge wire.



You can't get into the can to crank the motor or more timing. Even the vents in the can's bottom are under the magnet.

The Hammer Time motor is also timed at 24 degrees, which is the proposed timing limit for stock motors under ROAR rules (bravo ROAR!)

Because of the Hammer Time motors' tamper-proof design, there will be far fewer headaches when it's time to tech. These motors can't be altered, so there might be no need to look at them. The tabs that hold the endbell in place are bent so far that you'd probably have to be cut them to remove the endbell. According to Trinity, these new motors also use high-temperature double-insulated wires to prevent the coil shorts associated with stock-class motors.

The new 24-degree limit will naturally slow stock motors (considering that 45-degree motors are now available), but the timing cut is needed to increase their reliability and low-end torque. Racers can no longer pay \$28 to race a stock-class motor once.

I applaud Trinity's effort to bring stock-class racing back to tuning and driving. This motor embodies what the stock class should be—similar, inexpensive motors for all, and may the best driver win!

I tip my hat to ROAR for finally setting a timing limit on stock motors. Although I think the limit should be less than 24 degrees, it's a start! ■



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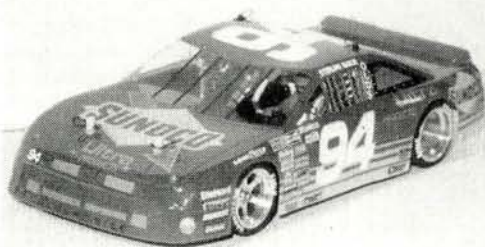
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KYOSHO

JET Stream

by RICH URAVITCH

GP-10

KYOSHO* JUST MIGHT have come up with a boat that makes it fairly painless for modelers to move from fast

Step into the ho
small vees; this

electrics to glow-powered boats!

I think it's safe to say that much of the recent growth in R/C boating has been caused by the many electric-



powered kits that have entered the marketplace. For the most part, they're well-thought-out, nicely engineered and designed to appeal to newcomers who want performance. The fact that they accept many of the high-performance parts available for R/C cars doesn't hurt either!

What happens, though, when boaters seek even higher levels of perform-

SPECIFICATIONS

Type: Glow-powered, deep-vee sport racer

Length: 35 inches

Beam: 8.1 inches

Weight: 3.7 pounds

Hull Material: Vacu-formed, pre-joined ABS plastic

Power Req'd: .10 glow engine (supplied)

No. of Channels Req'd: 2 (throttle and steering)

Sug. Retail Price: \$319.95

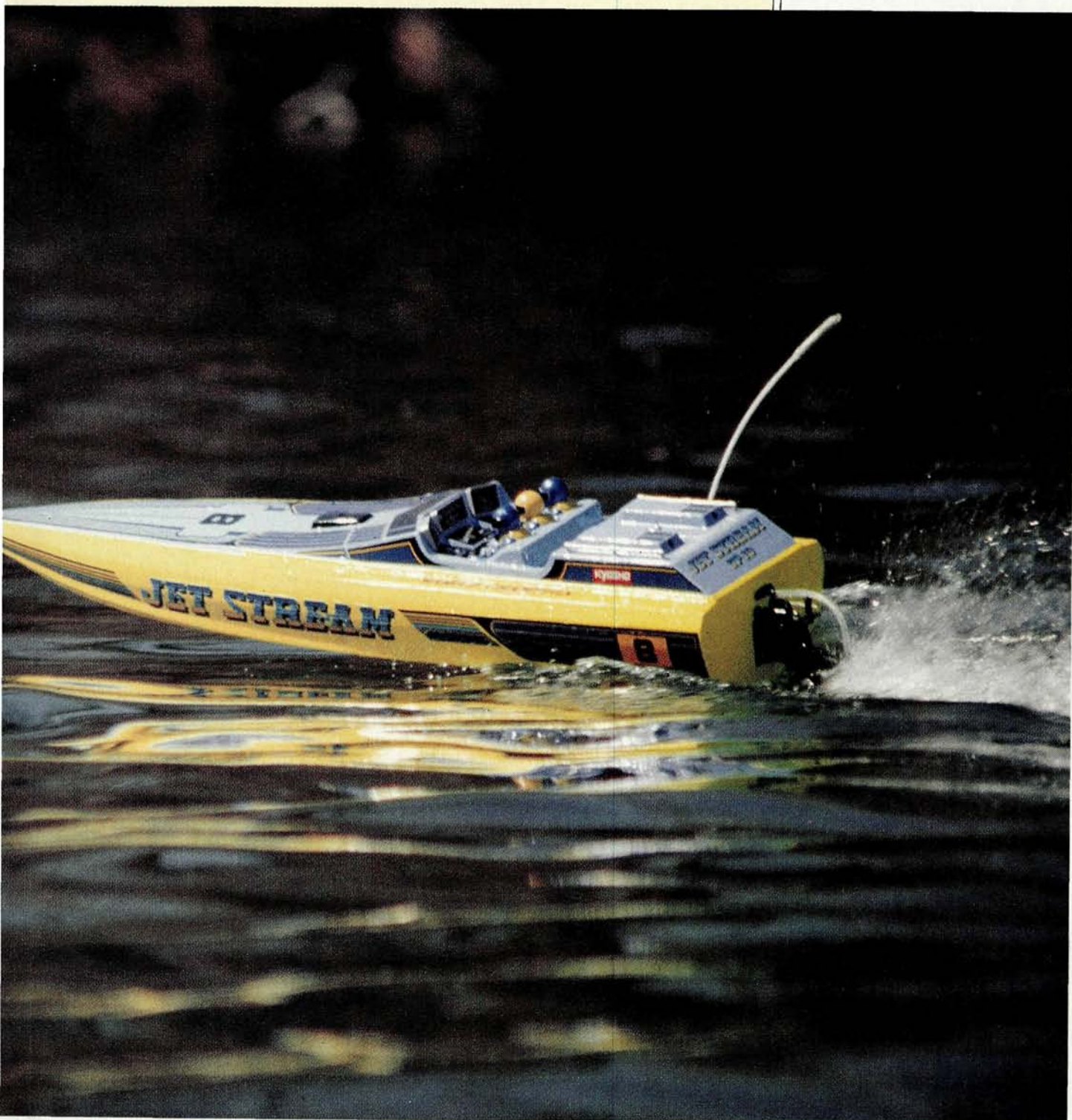
Features: Heavy-gauge ABS hull, extensive decal sheet, very detailed instructions for assembly and operation. An O.S. 10FP-M glow engine and a 1.5:1 gear train are included.

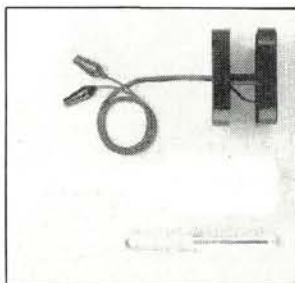
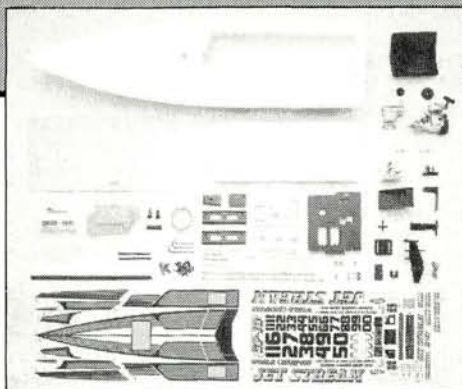
Comments: The complete kit includes starting accessories, a recoil pull-starter further simplifies operation. Easy to assemble and fun to run, this boat makes a non-intimidating transition from electric to glow.

ance and the "fire and brimstone" of glow boats? Does their experience with fast electrics help? Not really. Except for driving and radio installation, you pretty much have to start over when you enter the world of glow power.

ld of glow-engine
s it easy!

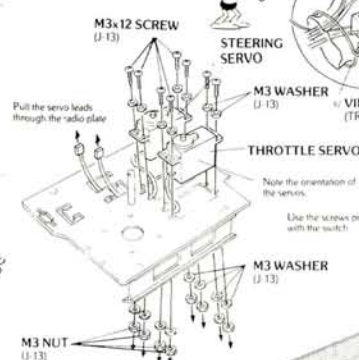
Although the sight of a twin .90-powered "rigger" blasting over aqua at what looks like "warp 6" is impressive, many are





14 RADIO SYSTEM INSTALLATION

- M3x12 SCREW (8) (J-13)
- M3 WASHER (16) (J-13)
- M3 NUT (8) (J-13)



Assemble all this, and you'll have a great glow boat! The kit is complete.

Even starting accessories (e.g. a fuel bottle, a battery box with leads and a plug wrench) are included. Your intro to glow couldn't be easier!

intimidated by glow-engine operation. To ease the transition, Kyosho* offers the Jet Stream GP-10. The company combined the proven Jet Stream 800 hull (the electric-powered version) with a little jewel of an engine—the O.S.* 10FP-M—to produce an extremely user-friendly package with great performance!

THE KIT

The kit is packaged well, and most of the parts (except for the hull and the removable cockpit) are either blister-packed or in numbered plastic bags. Two sheets of self-adhesive decals with a variety of numbers allow you to personalize your boat, and three metric Allen wrenches, lubricating grease and epoxy are included. To complete the assembly, you'll need screwdrivers, pliers, wire cutters, an X-Acto-type hobby knife and some sandpaper. A small awl or

a drill pin vise is helpful for drilling some of the holes required.

The 20-page, intelligently laid-out manual will answer some of your questions before they become assembly mistakes! I found only one error in the sequence—in step three; the instructions give you the impression that you apply the instrument panel decals directly to the cockpit's surface, rather than to the molded instrument board pieces, which are installed in step four.

ASSEMBLY

The hull is molded, white, ABS plastic, and it seems to be much more substantial than some lighter-gauge polystyrene, vacuum-formed ones. There's a considerable amount of molding "flash" around the hull's seam and the removable hatch, and this must be removed as explained in the

instructions. The recommended hobby-knife method was too tedious, so I used sandpaper (progressing from 100 grit to extremely fine 600 wet-or-dry) to give the hull a slick surface.

Because I planned to paint my Jet Stream, I lightly smoothed the entire hull with 600-grit sandpaper and wiped it (and the hatch) with alcohol to remove any oils or other residues that would prevent the paint from bonding properly.

I applied color directly from Pactra* R/C Car Racing Finish spray cans, using Fluorescent Yellow (RC279) on the hull and Blue Dust (RC253) on the hatch. This paint is not fuel-proof, so a clear topcoat of polyurethane or epoxy is needed to protect the finish. I chose gloss Hobby-



With the hatch installed, the GP-10 takes on the sleek look of an offshore racer. "Instrument panels" are part of the extensive decal sheet.



The completed test GP-10. Its removable hatch makes assembly simple and provides easy access for maintenance. The kit even includes a boat stand.

A surface-frequency Futaba 2-channel Attack pirated from an R/C car worked well. The transmitter gives a good indication of the GP-10's size.



poxy*, which I sprayed on in two thin coats after I had applied all the decals.

After the clear coat had cured for 24 hours, I continued the assembly "by the numbers," and I encountered absolutely no glitches—except those I created myself by not paying close enough attention to the illustrations or the instructions! Although the directions specify the type and quantity of hardware required for each step, selecting the screws was sometimes difficult. I suggest that you use the parts list to make labels and use a tray with individual compartments to hold the hardware. This will speed assembly by eliminat-

ing some confusion—believe me!

RADIO INSTALLATION

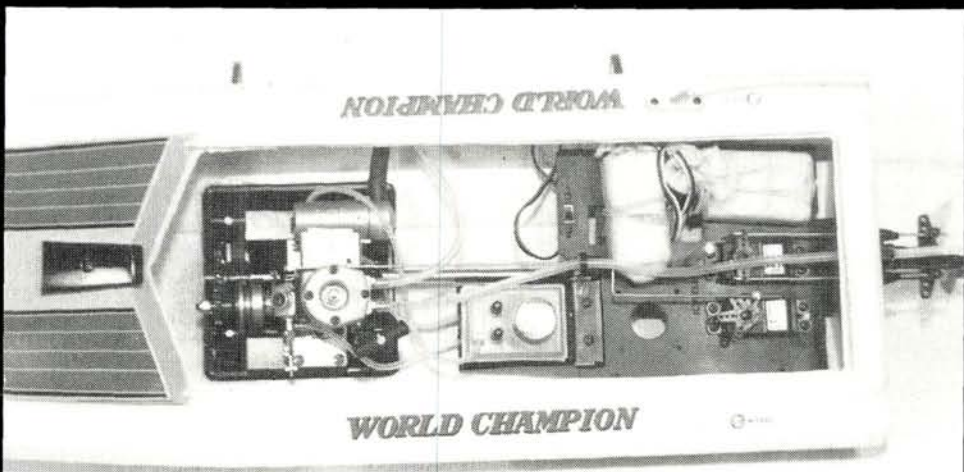
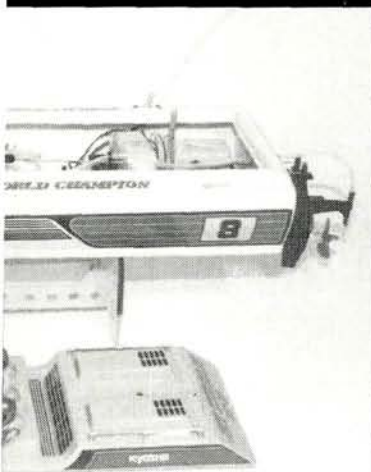
I "hijacked" a two-stick Futaba* Attack 2-channel radio out of one of my R/C cars (my wife's, actually), and it fit the Jet Stream with no problems. I'm sure that almost any modern radio would work well. To achieve some vibration-dampening for the radio components (which are "hard-mounted" to the radio plate), I bonded the radio plate and the engine mount to the hull. I used silicone sealant (the bathtub variety), instead of the less resilient epoxy supplied with the kit, and

it's holding up well.

I recommend a few minor changes to improve your Jet Stream's operation. First, replace the two pre-bent rudder control pushrods with a thinner wire, or, better yet, cable. Because it both pushes and bends during operation, the supplied wire loads the rudder servo unnecessarily and causes excessive battery drain.

Second, to provide supplemental air cooling for the O.S. engine, cut (or drill) some 1/4-inch

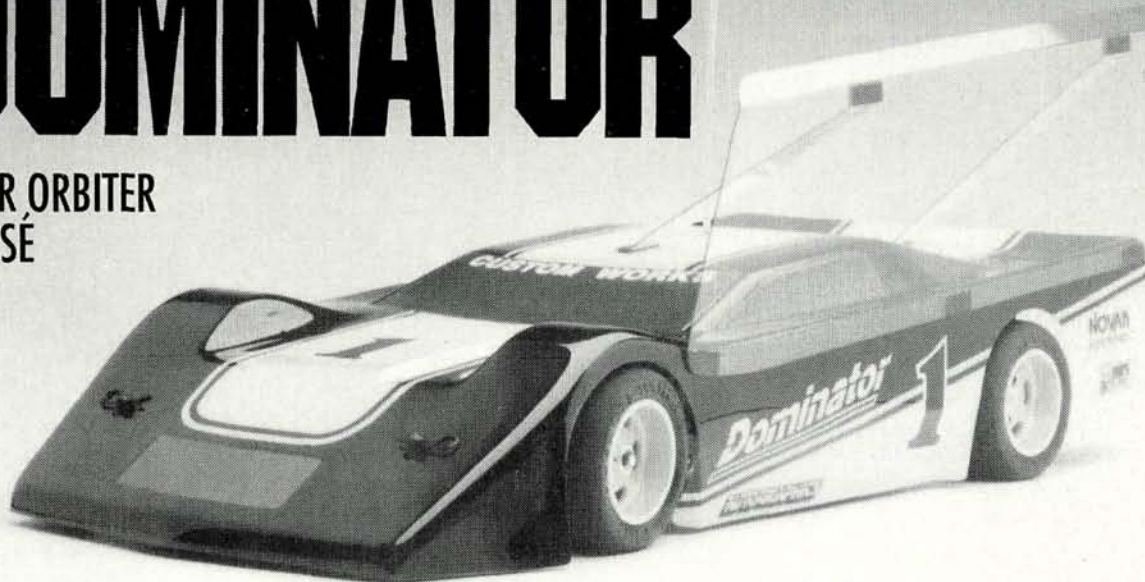
(Continued on page 186)



A look into the "stuffed" hull shows the neat layout. All electronics (battery pack, receiver and servos) are up high and away from any water that might enter the hull. Clear, flexible lines carry fuel and cooling water.

Secrets of the DOMINATOR

SUPER ORBITER EXPOSÉ



by JAY BOWMAN

THE CUSTOM WORKS* Dominator is an R/C phenomenon: it's the most impressive 4WD oval car ever built. Since this missile was introduced four years ago, other types of cars have rarely been seen in the A-Main of any prestigious dirt-oval event. The Dominator car kit includes all the parts necessary to make the car competitive; no after-market add-ons are required. (The Dominator racing team must have some well-

kept secrets!) After racing the Dominator for three years, snooping through Custom Works' driving Brian Landgraff's prepped car, and spending time with Brian and Jerry Landgraff, I've discovered the "secrets," and they're quite simple. This article, which I prepared with their assistance, will give you the necessary "team secrets."

The evolution of the Dominator IV started with the Yokomo Dog Fighter Off-Road 4WD made popular by Gil Losi, Jr. Dirt-oval R/C racing developed in Southern California as an alternative to off-road. No cars dedicated to oval racing were available, and racers modified their buggies for left turns. Jerry Landgraff began modifying the Dog Fighter for his son's oval racing, but he quickly found it inadequate. His craftsmanship and eye for detail enabled him to create the first R/C car designed strictly for dirt oval.

The earliest Dominator featured two gearboxes with no reduction shaft. Increased drive-train efficiency was needed, so the next racing prototype had dual differentials. The chassis' basic outline was maintained, the motor's position was altered, and short upper A-arms were tried. As soon as Brian Landgraff began to compete with the first version (all four prototypes can be seen at most R/C trade shows), it blew away the competition.

Why is the Dominator so dominant?—because it has an efficient drive train and a stable suspension. The simple chain

drive eliminates power loss, as there is no differential and very little drag. The dual A-arm suspension isn't adjustable, but it was designed with consumers in mind. All eight A-arms and the four chassis supports are interchangeable. The caster and camber were designed to make the car adaptable to most dirt oval tracks. To limit flexing and to improve the performance of the Delta shocks, new reinforced A-arms have been introduced.

The Dominator's instructions are easy

STANDARD LANDGRAFF SUSPENSION SETUP

Left front

Spring tension: 2 turns
Shock oil: 20WT synthetic
Tire Diameter: 2.80 inches

Right Front

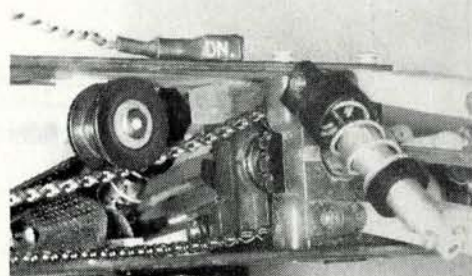
Spring tension: 4 turns
Shock oil: 20WT synthetic
Tire diameter: 2.85 inches

Left Rear

Spring tension: 1 turn
Shock oil: 10WT synthetic
Tire diameter: 2.75 inches

Right Rear

Spring tension: 2 turns
Shock oil: 20WT synthetic
Tire diameter: 2.80 inches

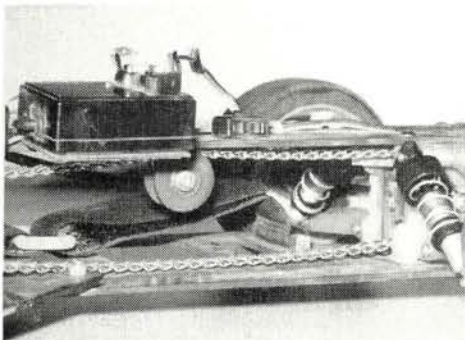


In its recommended position, the chain-tensioner pulley is as far forward as possible, with the chain under the pulley.

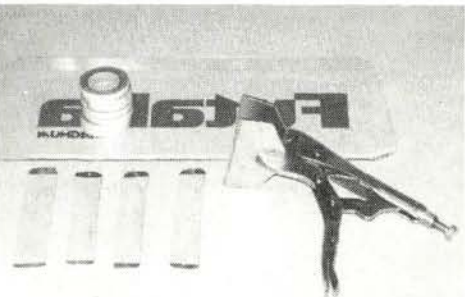
to follow and include tips so that you can set-up the car for competition. To make sure that the drive train is free and that the suspension functions smoothly, it's important to pay attention to details.

EYE ON THE SUSPENSION

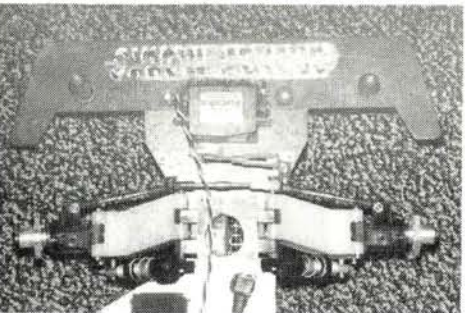
With the shocks removed, the A-arms should move freely throughout the suspension travel. Check the suspension



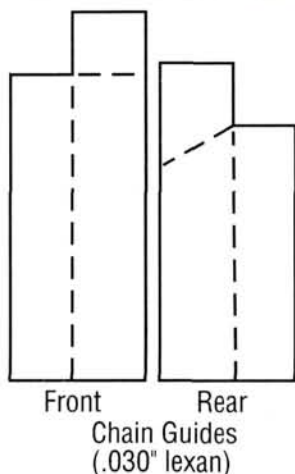
If the chain is too tight to allow you to fit it under the pulley, the tensioner should be moved to the rearmost position and the chain placed on top.



Metal vise grips can be used to bend polycarbonate side wings accurately (to produce a variety of handling effects), or to bend wing supports and increase rigidity.



The new, reinforced A-arms are designed to limit flexing, and this allows smoother, more effective use of the shock absorbers.



hinge pins regularly by rolling them over a flat surface (bent pins can cause binding). You can use a no. 31 reamer for the hinge-pin hole, but do this carefully so that you don't make the hole too big.

A critical and often misunderstood aspect of the suspension is the assembly of the Delta shocks. Follow the directions, and carefully remove flash from the piston. Make sure that the piston will travel *freely* through the threaded shock cap and plastic washer. Replace the shock oil frequently, because it bleeds out with normal use. Prior to re-assembly, flush the shock body and parts with motor spray. New rubber O-rings will also extend the life of these shocks.

The type of shock oil used depends on the track conditions. A heavier oil is always put into the front shocks because they take the brunt of bumps. The front tires are pushed over a bump, while the rear tires are simply dragged over it. On a rough track, a good combination would be 15WT in front and 10WT in the rear. Heavier combinations (start with 20/10) can be used on harder tracks. Oil weights of 30/20 up to 70/60 have been used on hard surfaces.

A heavy shock spring is standard for most tracks but an optional, lighter spring works well on rougher ovals. The heavier the spring and oil, the "looser" the car. Looseness will increase steering response, and cars that are "on the edge" of control are the fastest, e.g., Indy cars use a stiffer suspension for qualifying. (The spring

tension on any car can alter its handling characteristics.)

Before you install the shock, unscrew the tension-adjustment screw until there's no tension on the spring and the screw just touches it. A standard setup begins with four turns for the right front shock, two turns for the left front and right rear shock, and one turn for the left rear.

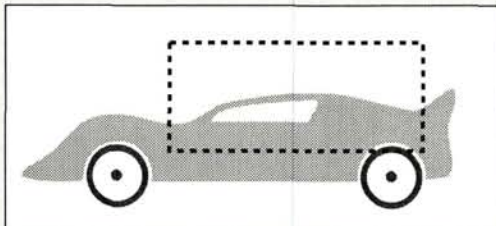
DRIVE-TRAIN DETAIL

It's not unusual to have to disassemble the car completely between rounds. This may sound drastic and time-consuming, but good maintenance that improves performance is worth the effort. You can take the car apart, clean the bearings, and reassemble it in sections.

The Landgraffs have found that the most effective method of cleaning the 16 flanged bearings is to disassemble them. Cover your work surface with a clean, white towel. (It prevents any dropped parts from bouncing off the table, and the white background improves visibility.) Remove the bearing shields on each side of the bearing by popping the springs that hold them in place. The spring is released by catching the free edge with a new X-Acto blade tip or a sharp straight pin held in a pin vise. The flimsy shields can be carefully pried away without the internal ball bearings falling out. Tiny shield springs can "zing" into the weeds, so be careful!

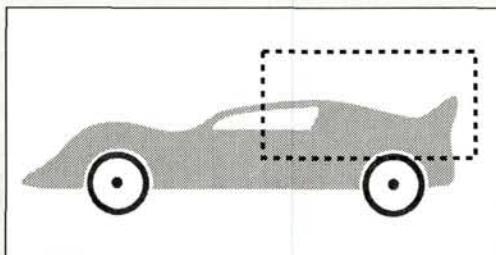
Clean the bearings with motor spray and set them aside to dry. To check for

EXTREMES IN HANDLING



Factors to Increase Steering

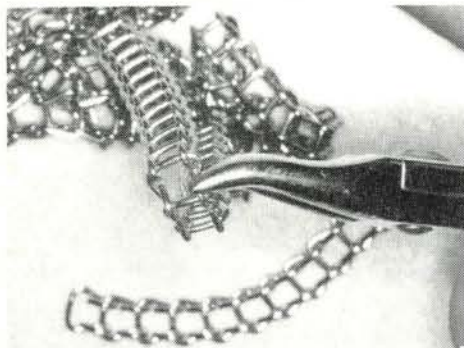
- Move side dam forward
- Bend down gurney lip
- Add cheater wing
- Add rear ball differential
- Use Rocket Wedge body
- Set up with slight toe-out
- Increase servo throw on radio
- "Tag" brakes to set car into corner
- Use heavier oil



Factors to Decrease Steering

- Move side dam aft
- Reduce or eliminate gurney lip
- Add tail spoiler
- Add rear anti-roll bar
- Use open comp body
- Set with slight toe-in
- Decrease servo throw on radio
- Increase left rear shock tension
- Use lighter oil

DOMINATOR

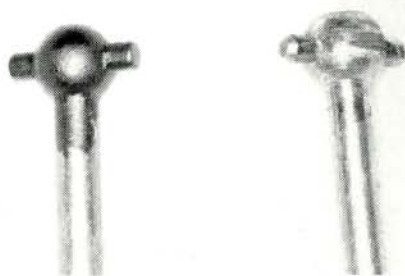


Lightly crimp the chain with small pliers to increase its life expectancy.

grit, put them on a tapered reamer, tweezers, or on a Dominator axle and spin them with your fingers. There are several available bearing lubrications, e.g., WD/40, skateboard bearing oil, Revtech* bearing oil, SCAT* bearing oil, and Racer's Choice* Hy-Spin. Moderation is the key here; only one or two drops are needed. To replace the spring, put your fingernail on the edge of the spring for support. Check the re-assembled bearing again to make sure that it moves freely.

After the car has been cleaned and re-assembled, hold it vertical keeping one hand on its rear. Using your index and pinky finger, hold the rear A-arms parallel and give the rear wheel a good spin. All four wheels should spin freely for several seconds.

If binding is a problem, there are a few obvious areas to check. Examine the chains for any kinks or links that are pulling apart. Lubricate the chains with Paragon's* Ultralon and use Paragon's Liquid Bearings for all metal-to-metal contacts. Check for play in the front and rear sprockets by grasping the sprocket with your fingers, and make sure it will move slightly from side to side by adjusting the position of the outdrive hubs. Don't forget to use thread-locking compound on all setscrews! Use thread-locking compound on the steering assembly's



To help prevent wear, Paragon Liquid Bearings has been applied to the dogbone on the left. The dogbone on the right is an example of what can happen when you don't use lubrication.



A small vertical wing over the left front wheel will help hold the car in turns and increase its turning ability.

drag-link balls, and lubricate them with Ultralon. If you don't, the aluminum supports will "gall" themselves.

CHAINS

Check the chain tension; the extreme torque to which it's subjected can stretch it. To extend the life of the rear chain, crimp the links with pliers. You can't remove any links from the rear chain, but you can remove two links from the front one. You don't have to take the chain out of the car; just remove the right reduction shaft support. Tape the sides of the battery pack to prevent the chain shorting out the cells. On the starting line, "set" the chain by rolling the car backwards.

The idler-pulley assembly should always be placed as far forward as possible, with the chain below the pulley. If the chain is too tight, put the pulley in the rear position and the chain over the pulley. To help prevent "chain jumping," chain guides should be made of .030-inch polycarbonate.

Bent dogbones can also lead to binding. Rolling the dogbone down the graphite nerf-bar struts will expose any bends. (A dogbone straightener might be a good investment.) Examine the dogbone ends for excessive wear, especially the shaft section right below the ball, since it wears on the outdrives.

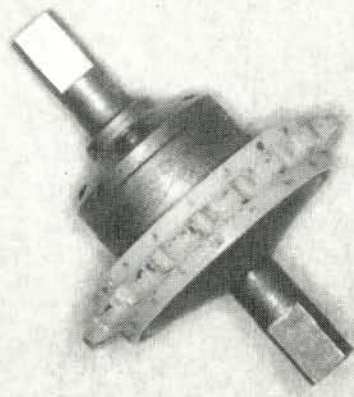
DOMINANT OPTIONS

Since dirt-oval track surfaces become hard-packed and smooth, a few options

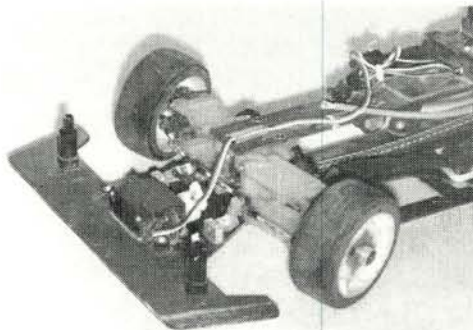
Cheater front wing (actual size). Bend .20-inch polycarbonate along broken lines. Attach with servo tape and miniature screws to the left front fender.

are available for the Dominator. Rear anti-roll bars were introduced to stiffen the rear suspension and reduce roll. They're most often used to reduce rear chassis roll and to improve agility in entering and exiting a corner. A ball differential can be used for tight radius corners or high-banked ovals. The diff makes it easier to get a car out of the marbles and back into the racing groove.

Foam tires have allowed staggered tire diameters (or roll-out) to play another role in handling. Three compounds of mounted foams are available from Custom Works, but mounting of Losi* 1/8 gas



A new option for the Custom Works cars: a ball differential that will improve cornering and bite on loose tracks.



TM Radials have taken the dirt-oval world by storm! On hard-packed surfaces, they're unbeatable.

and CKW rubber has also been popular.

As a base line for setting stagger, always put the largest tire on the right front; put tires of equal size on the left front and right rear, and the smallest on the left rear. The foam tires may also be "siped" (cut around the tire circumference by the owner) or grooved and trued to a selected stagger on a lathe. The latest improvement was the introduction of the TRC* TM Radial capped tires (first popularized on paved oval tracks). Jim "Iceman" Dieter and I first used the capped tires on dirt, and they were great on the hard tracks at

dam increases straightaway stability by funneling the air flow over the body. The new Custom Work's Randy Sweet Rocket wedge body (designed after the record-holding full-size stock car) provides ideal aerodynamics for oval racing.

The wings must be securely fastened and supported. Polycarbonate supports should be secured with Revtech's* narrow servo tape and attached with miniature screws or bolts; if they aren't, you could lose the wing in a racing tangle, and a wingless Dominator is a handful! To help keep dirt out of the motor, cut

out a polycarbonate motor guard, and attach it to the chassis with servo tape.

Driving a Dominator is very different from driving any other R/C car, because you literally pitch it into the corners. The

Dominator backs into the hairpin turns and is virtually sideways in a four-wheel drift through the corner. With careful maintenance, this car can be a most rewarding and exciting car to drive—right out of the box.

**Here are the addresses of the manufacturers mentioned in this article:*

Custom Works R/C Products, 3720 Easton Dr., Suite 6, Bakersfield, CA 93309.

Paragon Racing Products, 690 Industrial Circle So., Shakopee, MN 55379.

Team Losi, 1655 E. Mission Blvd., Pomona, CA 91766.

Revtech R/C Products, 7401 White Lane, #19, Bakersfield, CA 93309.

Scat Racing, 20029 Labrador St., Chatsworth, CA 91311.

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The new Custom Works Randy Sweet Rocket wedge body is designed after this full-scale record holder. Note the size of the side wing.

Racer's Haven in Bakersfield, CA, and the Indoor Track in Fort Worth, TX. A treaded version is in the works.

A lot has been written about side-dam positioning and its effect on handling. Here are some tricks that may help: unless the track is quite short and has hairpin corners, the wing should extend 1.5 inches beyond the end of the body. A "gurney lip" bent over the top of the side dam will increase steering response as its angle increases. If the car is "darty" on long straightaways or tends to nose dive on slightly rough tracks, add a tail spoiler. Some tracks allow unlimited wings, and a cheater on the left front fender will help to hold the car in corners and increase cornering stability. A small, right rear side

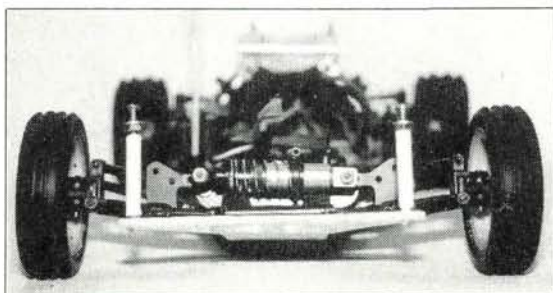


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On-Road

PHOTOS BY JOHN FOREHAND



by JOHN FOREHAND

JR-X2

*The JR-X2
hits an
all-time
low!*

How do you modify the world's best-handling, out-of-the-box, 2WD, off-road car—Team Losi's* JR-X2—for on-road and oval racing without destroying its handling? You could keep it the way it is and run the stock off-road body, but that's boring. You could butcher one of those super-low, super-swoopy, super-slick polycarbonate on-road racing bodies by cutting holes through it for those huge shock towers, but that looks ugly, the shocks always rub on the polycarbonate, and the body jams the shocks when it's bumped. You could buy a lowering kit, but it would leave the front shocks higher than those on a pan car, and if you want to use a body other than the one supplied, you're back to butchering the polycarbonate!

I wanted something that would give me:

- handling that's equal to, or better than, that of the stock setup
- the front suspension lower than the tops of the tires
- the ability to fit any 1/10-scale body without cutting huge holes for shock towers

Most important, it should be easy to build and maintain.

After playing around with pushrods, pullrods, rocker arms (à la the Top Cat), the answer seemed obvious as I laid a front shock down across the front of the chassis: a monoshock!—the perfect answer.

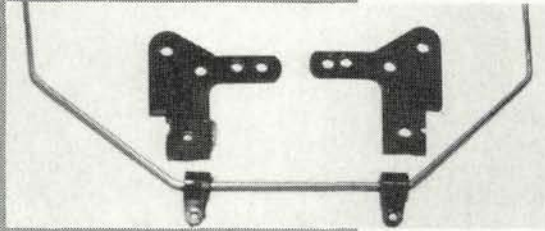
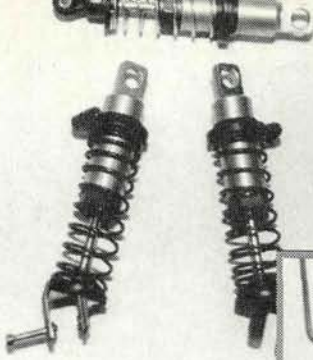
Unfortunately, a monoshock tends to act like a teeter-totter, and without either very light springs and shock oil, or a heavy front end to keep pressure on the shock assembly, it won't work very well. The problem is "tuck under," and its solution came from the offshoot of a gimmick we used in sports-car racing in the '60s.

We experienced this tuck under with the inside rear wheel on Formula Vs, Porsches and VWs. As a car entered a turn, weight would be transferred to the outside, and this would unload the inside suspension. Since the suspension was a single A-arm design that allowed radical positive caster

(Continued on page 114)

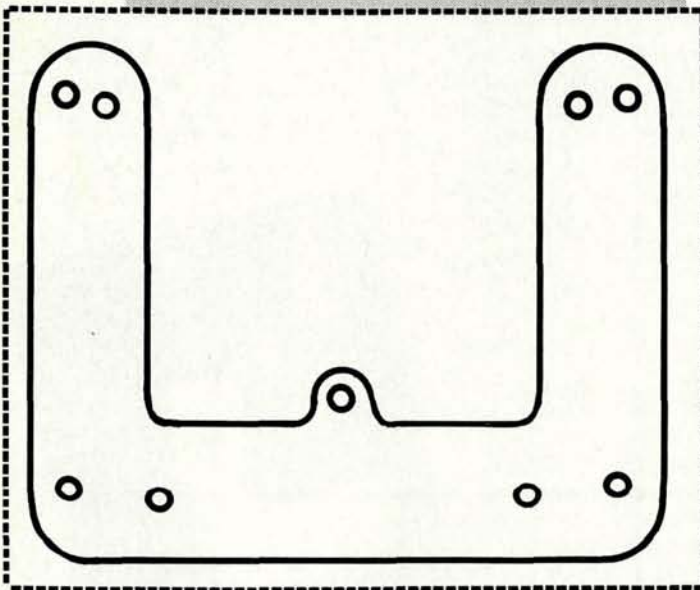
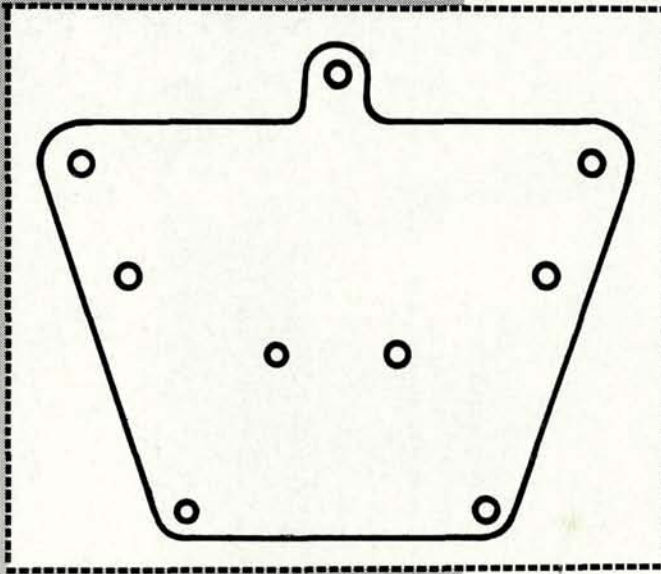
Left: To bring the JR-X2 down to street level, three short shocks are required—two for the rear and one for the front.

Below: To control the seesaw effect of the monoshock, an anti-roll bar is required.



Right: The stock rear shock tower is designed to be used with stock long shocks.

Below: This is the JR-X2 front shock tower in its stock configuration.



when extended, the arm to the "inside" of the car would drop and cause the wheel to tuck under. To prevent the suspension arms from dropping too far and causing this condition, we'd run a cable from the swing axle up over the back of the transmission or shock towers and back down to the other side. The outside wheel could then deflect in corners or when going over bumps, but the inside wheel could no longer tuck under and tip the car. Best of all, because the suspension on the upward stroke worked as it was designed to, we could run any spring, torsion bar or shock combination.

THE MONOSHOCK SETUP

For the monoshock setup, I've just exchanged the cable that ran vertically for music wire that runs horizontally. Voilà!—a non-teeter-tottering monoshock that can use any spring and any shock oil suitable for your track.

So, let's make it! Leave the suspension attached to the front bulkhead, except for the adjustable upper link. Unbolt it at the shock tower, but leave the camber adjustment as it was. Unbolt the front shocks and remove them from the A-arms and the shock tower. Remove the shock tower from the front bulkhead (only two screws hold it in place), and get ready to do some cutting.

With a Dremel tool or a jewelers' saw, cut the ears off the shock towers at the point shown in the drawings and photographs, then cut the monoshock connecting arms from 1/8-inch fiberglass or graphite. The drawings are full size, so you can just draw around them. Drill holes to fit standard 4-40 screws as shown.

When installing the monoshock connecting arms in the A-arms, use the original shock-mounting screws. Make sure you back-up the connecting arms with 4-40 nuts as shown: any slop here will destroy the handling. I even superglued the nuts after they had been tightened against the connecting arms.

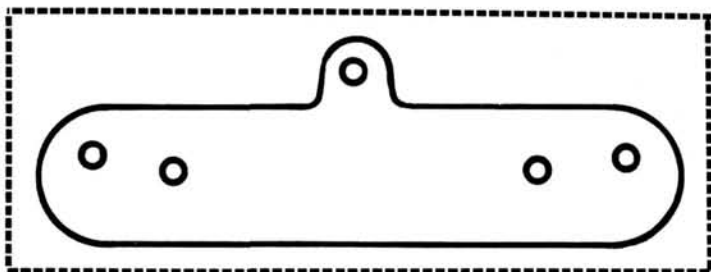
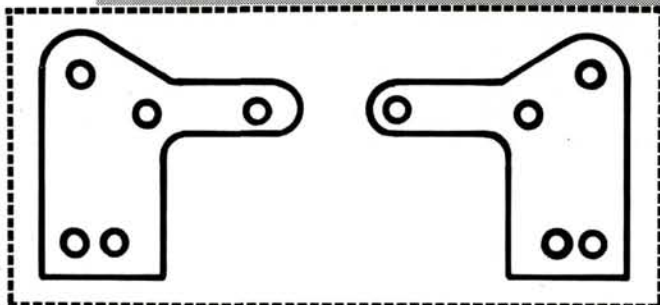
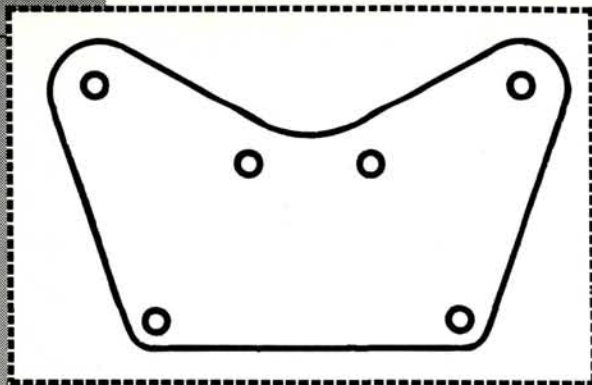
Install one of the screws from the top shock mount of the old shock tower in the left connecting arm; add the two nylon nuts, and slide on the bottom of one stock front shock and spring setup. On the other side, add the screw and stock front-shock mount to the connecting arm, snap on the top of the shock and the nylon retaining nut. You've done the difficult part!

(Continued on page 116)

Right: This modified version of the rear shock tower allows the use of short shocks.

Below Right: The modified front shock tower now only serves as a mount for the adjustable upper links.

Below: This template is for making the JR-X2 monoshock mounts.



When you pick it up, you'll see the teeter-totter effect you have to get rid of. Here comes the patent-applied-for torsion compensator! You'll probably find these retainers in the R/C airplane section of a hobby shop. Buy a couple, slide the 3/32-inch-diameter music wire through them, bend the wire as shown in the drawing, and slide the two ends through the shock-mounting holes in the A-arm, the connection arm, and out through the rear of the hole in the other side of the shock-mounting slot. Screw the plastic retainers to the front bumper at the bend in the wire, and then pick up the front end. The teeter-totter has been tamed! Either side deflects upward while the other side stays put. The monoshock works, and the teeter-totter has disappeared.

THE REAR END

At the rear of the car, remove the shock and the four screws that hold the shock tower to the transmission. Trace around the rear shock-tower drawing as shown, and with your Dremel tool or jewelers' saw, chop off the unwanted parts.

Remove the bottom shock mounts and spring cups from the rear shocks and mount them on a pair of the shorter front shocks. You'll only have to buy one new one—you already have a spare one from the front end.

Now for the rear body mount: I sell airplanes for a living, so I'm around the aluminum mechanics use. I begged a piece of scrap metal from them, bent it 90 degrees, drilled the holes as shown, and I had a perfectly serviceable rear mount.

Re-attach the modified shock tower to the transmission, then mount the rear body mount and the modified front shocks with the stock, top, mounting hardware as shown. Attach the lower shock mount to the second-from-the-front hole in the lower trailing arms.

The front body mounts are simply two pieces of hobby-shop plastic tubing mounted on the front bumper as usual.

The highest points on the chassis are now the top of the transmission in the rear and the stock mounting stud at the front. Very few bodies are too low for this setup!

I don't use front and rear camber with the car loaded with batteries and ready to run. The ride height at the front is set

with both A-arms slightly raised at the steering blocks and the rear axle horizontal, or just slightly raised at the hub carriers.

Front toe-in is set at 1mm. I could never figure out how they measured this in degrees; I use a metric ruler to measure the difference between the front and back of the tires across the chassis, and this works well. I have the stock front springs in place on the monoshock and the two rear shocks, and I run 40WT Losi oil in all three. The suspension is a little stiff, but the handling has been fine.

I won't claim this suspension setup is better than stock, but it's at least as good on the road or oval where you don't need the long stock suspension travel. I can't swear to this, but the enclosed wheel bodies not only look good, but also seem to be more aerodynamic. They certainly help my car to bounce off walls and other cars without getting tangled up or tipped over like the open-wheel cars.

SHOCKING PERFORMANCE?

Here's where most authors will tell you that, the first time out, they won the A-Main by 10 laps or so! Well, I didn't do quite that well! My JR-X2 carries race number 3 to show that last year, I was 3rd in 2WD in our club's race-point standings. So how did I do with the monoshock?

The first time out, the monoshock took 2nd in the A-Main road race; the second time, it took 3rd in an A-Main oval race; and as I write this, I'm a week away from the third point race, and it's back to a roadcourse.

I still have to do a lot of tweaking, experimenting and adjusting of the monoshock front end, but early results have been really promising. (To tweak the front end of this monoshock setup, you only have to bend that torsion compensator on one side or the other!)

So what's next on my list of dream-about-it mods for my JR-X2? I plan to mid-mount the motor and lower the transmission, while retaining the stock Losi rear suspension. Hmm...if I just cut a little off there, and add something here....

**Here's the address of the company featured in this article: Team Losi, 1655 E. Mission Blvd., Pomona, CA 91766. ■*

7TH ANNUAL JG OVAL CHAMPIONSHIPS

DIRT-OVAL MANIA!

by ERIK SODERQUIST

IT HAPPENED AGAIN! For the seventh year, drivers from all over the country converged on Racers Haven in Bakersfield, CA, to participate in the most prestigious dirt-oval race of the season—the JG Oval.

The JG Oval began in 1984, and with the expert assistance of the host track—the Ranch Pit Shop—it quickly became famous nationwide. It has since set the standards by which other races are measured. Past winners include two-time National Champion Scott “TQ Hero” Quillen and Curtis Strawn, a three-time winner who many consider to be the sport’s premier 4WD driver.

This year’s event brought together yet another classy field, which included representatives from Trinity, Track Master, Revtech, Twister, Custom Works and Superior Racing. Although the race officially began on Friday, some of the top teams began testing sessions as early as Tuesday. With all the participants as ready as they’d ever be, it was time for the first day of qualifying.

It soon became apparent that the competition for the top qualifying spots might not even be close. Chris Smith, John “the Hammer” Smith, Brian Landgraff, Kevin Stevens and Curtis Strawn each completely dominated his class, leading the field

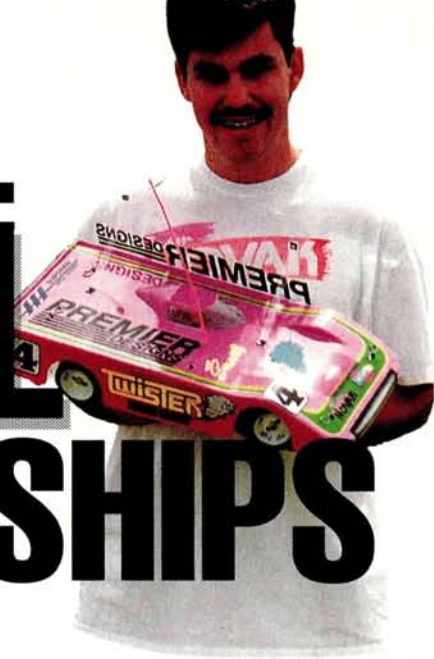
by at least a lap! Qualifying was so blisteringly fast that in every class (except 2WD Modified), the track record was broken—and some records were more than 1½ years old!

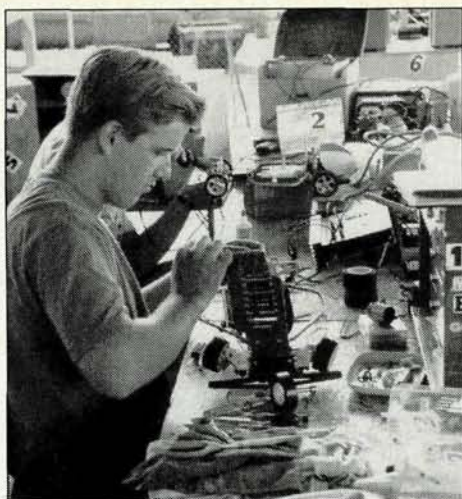
More topnotch drivers arrived, and the second day was even more exciting. On his first run, Chip Riesbol came within 3 seconds of Chris Smith’s TQ time of 42/4:05. In the next two qualifiers, he bettered his own time by only 2 seconds, but he looked strong and solid for the Mains. Jim Dieter, Brian Landgraff and George Vardzik slid in behind him for 3rd, 4th and 5th, respectively.

Four-wheel drive could have been renamed “The Curtis Strawn Show,” as he was gunning for his fourth straight JG Oval win. He blew away his own track record of 42/4:03 in five of six runs! (His top time in qualifying was a 43/4:02.) Chris Smith and Sean Young wound up 2nd and 3rd, respectively, and Russ Hawkins and Jim Dieter battled it out for 4th. In the end, Hawkins captured the spot by a mere six-hundredths of a second!

Kevin Stevens dominated the early rounds of the Sprint-Car Class, but on Saturday, things

changed. The field gradually caught up with him, and in round 5 of qualifying, Ken Pullman snatched the top spot. In the final round, he solidified his position by





knocking 4 seconds off his time to post a new track record of 37/4:01! Stevens came in 2nd, followed closely by the up-and-coming David Markert. Scott "Mr. Low-Key" Quillen and Joe MacGregor took 4th and 5th, respectively.

The Truck Class provided some of the weekend's most exciting races. Most of the action wasn't on the track, however, but in the air! Late arrival Tom Clark annihilated Brian Landgraff's best time by a full lap and took the TQ spot. Landgraff held on for the 2nd, and Steve Melton, David Miller and Tom Cox qualified 3rd, 4th and 5th.

John "Hammer" Smith was the force to be reckoned with in the 2WD Truck Class. In the qualifying sessions, he completed 34 laps—twice! Guy Maxwell and Mike Burns both did 33 laps and qualified 2nd and 3rd, respectively. Eddie Mondragon's 32-lap effort was good enough to earn him the 4th spot.

LET THE MAINS BEGIN!

Would Curtis Strawn make it four in a row? Would Chip Riesbol be able to overcome a lack of track time and take the 2WD crown? Sunday was the day these questions would be answered, and it was exciting, to say the least.

First there was the "TQ" run, which followed a regular 4-minute format and included the top qualifiers from each class. All the drivers were given a handicap based on their qualifying times. When the smoke had cleared and the handicaps had been calculated, Curtis Strawn had not only won, but he had also set a great new track record of 43/4:01!

The A-Mains were run as double Mains, so both races were equally important. The entrants' two finishing positions were added, and the person with the lowest total was the winner.

JG OVAL WINNERS

2WD Truck—1st A-Main

Fin	Qual	Name
1	3	Guy Maxwell
2	5	John Smith
3	6	Mike Burns
4	9	Jerry Casado
5	2	Eddie Mondragon
6	4	Jivin' Jeremy
7	1	Gary Kortz
8	8	Tony Sanders
9	10	Joseph Lopes
DNS	7	Steve McAfee

2WD Truck—2nd A-Main

Fin	Qual	Name
1	6	Mike Burns
2	4	Jivin' Jeremy
3	3	Guy Maxwell
4	2	Eddie Mondragon
5	7	Steve McAfee
6	1	Gary Kortz
7	8	Tony Sanders
8	10	Joseph Lopes
9	9	Jerry Casado
10	5	John Smith

4WD Truck—1st A-Main

Fin	Qual	Name
1	10	Steve Schultz
2	7	David Miller
3	2	Tom Clark
4	8	Tom Cox
5	4	John Gudvangen
6	5	Gary Kortz
7	1	Steve Melton
8	6	Eddie Mondragon
9	9	Brent Simonian
10	3	Brian Landgraff

4WD Truck—2nd A-Main

Fin	Qual	Name
1	7	David Miller
2	10	Steve Schultz
3	8	Tom Cox
4	4	John Gudvangen
5	5	Gary Kortz
6	6	Eddie Mondragon
7	9	Brent Simonian
8	1	Steve Melton
9	2	Tom Clark
DNS	3	Brian Landgraff

4WD Modified—1st A-Main

Fin	Qual	Name
1	4	Curtis Strawn
2	1	Russ Hawkins
3	5	Martin Buchanan
4	3	Sean Young
5	9	George Vardzik
6	8	Robert Moss Jr.
7	7	Ken Pullman
8	10	John Jenkins
DNS	6	Chris Smith
DNS	2	Jim Dieter

4WD Modified—2nd A-Main

Fin	Qual	Name
1	6	Chris Smith
2	4	Curtis Strawn
3	1	Russ Hawkins
4	3	Sean Young
5	5	Martin Buchanan
6	7	Ken Pullman
7	8	Robert Moss Jr.
8	9	George Vardzik
9	10	John Jenkins
DNS	2	Jim Dieter

2WD Modified—1st A-Main

Fin	Qual	Name
1	7	Charles Riesbol
2	9	Brian Landgraff
3	4	Chris Smith
4	6	Sean Sinclair
5	5	Tyler Clements
6	10	Tom Clark
7	1	Scott Quillen
8	2	George Vardzik
9	8	Joe MacGregor
DNS	3	Jim Dieter

2WD Modified—2nd A-Main

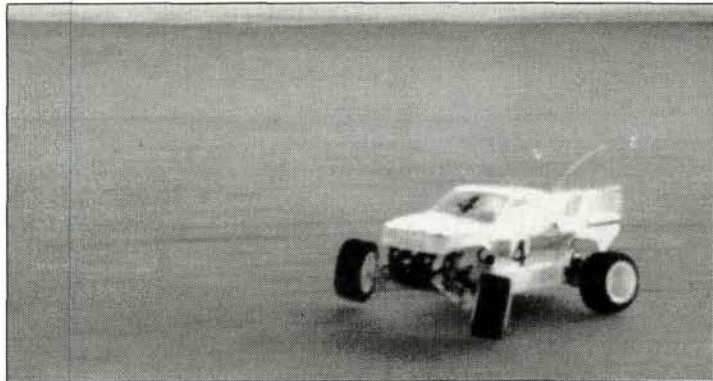
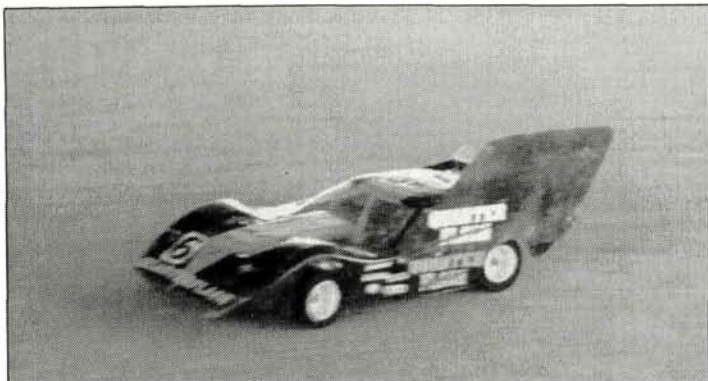
Fin	Qual	Name
1	7	Charles Riesbol
2	9	Brian Landgraff
3	4	Chris Smith
4	10	Tom Clark
5	1	Scott Quillen
6	6	Sean Sinclair
7	8	Joe MacGregor
8	2	George Vardzik
9	5	Tyler Clements
DNS	3	Jim Dieter

Outlaw Sprint Cars—1st A-Main

Fin	Qual	Name
1	5	Kevin Stevens
2	8	Steve Allen
3	3	Ken Pullman
4	9	Danny Egger
5	7	Scott Quillen
6	2	Joe MacGregor
7	1	John Smith
8	10	Jerry Kikkert
9	6	David Markert
10	4	Jimmy Gouge

Outlaw Sprint Cars—2nd A-Main

Fin	Qual	Name
1	5	Kevin Stevens
2	6	David Markert
3	9	Danny Egger
4	2	Joe MacGregor
5	3	Ken Pullman
6	4	Jimmy Gouge
7	10	Jerry Kikkert
8	1	John Smith
9	8	Steve Allen
10	7	Scott Quillen



Ties were broken by adding the times from both Mains; the driver with the most laps won.

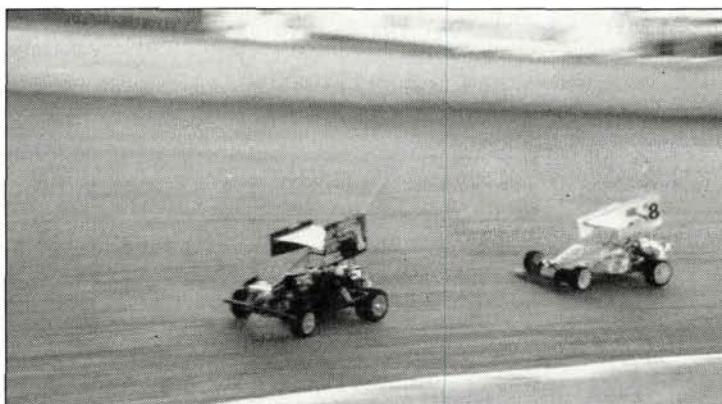
2WD TRUCK MAINS

The 2WD Truck Class was an unpredictable affair. At the sound of the horn, Guy Maxwell, the number-two qualifier, shot into the lead. At the end of the first lap, it was Maxwell in 1st followed by Mike Burns and John Smith. Maxwell turned the only sub-7-second lap on lap 3 and was *gone* from there! Halfway through the race, Burns ran into trouble, and Smith passed him and took over the 2nd position. Maxwell streaked away and won the first Main by just over 3 seconds.

The second Main began in a similar way, but it quickly turned into a disaster for Maxwell, as a major run-in with the back markers dropped him way back in the pack. John Smith was involved in a similar incident and suffered the same fate. This turned the lead over to Mike Burns, who ran a meticulous race and won by over a lap. Jivin' Jeremy worked his way into 2nd, and Maxwell managed to battle back and finish 3rd. Burns's second A-Main win propelled him to the overall class win; Maxwell was the runner-up; and Jivin' Jeremy took 3rd.

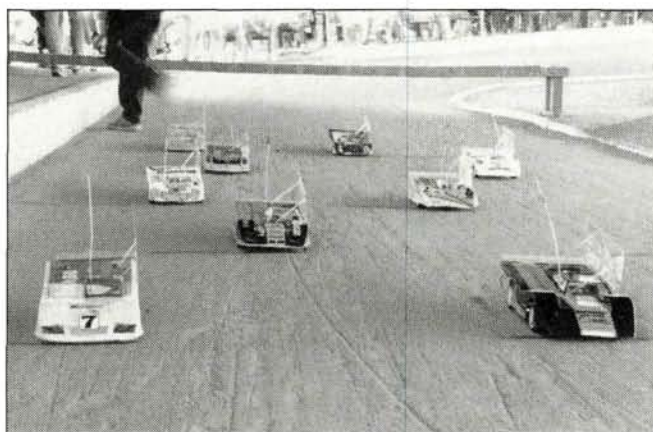
4WD TRUCK

The 4WD Truck Class featured much the same action. In the first Main, TQ Tom Clark bolted into the lead, followed closely by Tom Cox and Steve Shultz. Then Cox got stuck in a major pileup and faded to the rear, and Clark had a major problem with traffic on lap 8. This allowed Shultz to steal the lead. Even though David Miller made a valiant charge, Shultz was able to hold on



for the win. Miller finished 2nd, and Clark recovered from his early race tangles to finish 3rd.

After making a late charge in the first A-Main, David Miller absolutely *blew away* the field in the second one. He grabbed the holeshot, led from start to finish, and won by a 1½ laps! The rest of the field scrambled through some mid-race crashes, and Steve Shultz ended up in 2nd, and Tom Cox in 3rd. (Tom Clark didn't factor in the race at all, because he pulled out on lap 9.) David Miller's runaway win netted him



the top spot overall; Steve Shultz took 2nd, and Tom Cox came in 3rd.

SPRINT CARS

All weekend, the Sprint-Car Class was hotly contested, and three drivers broke the magical 37-lap barrier. Frustrated by losing the TQ position to his

teammate, Kevin Stevens practiced hard, even during the barbecue! His work paid off: in the first A-Main, he took the lead on the first lap and never looked back! Only a few small bobbles kept him from another 37-lap run. Steve Allen made a sensational charge to the front and survived a late-race mishap to hang on to 2nd, just .32 second ahead of TQ Ken Pullman.

Again, the horn sounded for the sprint cars, and again, Kevin Stevens was out in front. A first-lap crash involving John Smith, Joe MacGregor, Steve Allen and Danny Egger resulted in a mess that took a while to clear. Determined to top off an already impressive weekend, Stevens turned it up a notch, avoided more crashes than you'd believe and finished 1st again! His outstanding performance gave him a well-deserved victory. Danny Egger's consistent finishes in both Mains won him 2nd place—by only one point over TQ Ken Pullman.

2WD FINALS

Early on, it looked as if the East Coast Motors-powered Intimidator driven by Chris Smith would control the 2WD class. Enter Chip Riesbol and his dad—a combination that has totally dominated this track in the past. The crowd was eager to see just how Riesbol would stack up against some of the best competition. What they saw was an absolute driving

clinic!

Smith jumped into the lead, but Riesbol was right on his bumper—less than ½ second behind. While the two leaders took off, Brian Landgraff worked his way through the traffic to 3rd place. Riesbol bided his time and

(Continued on page 199)

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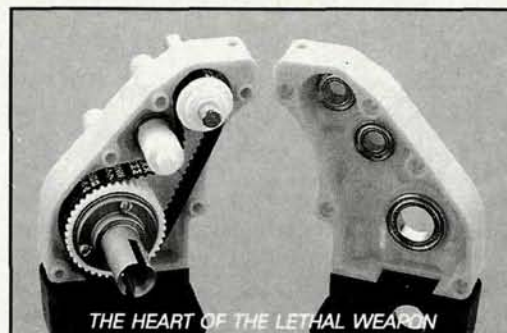
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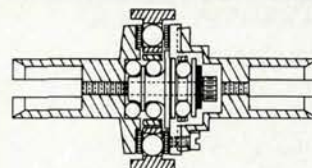
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(Continued from page 90)

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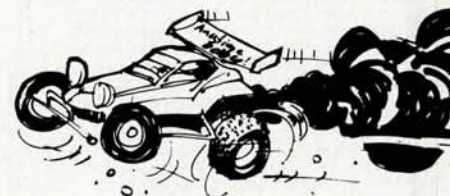
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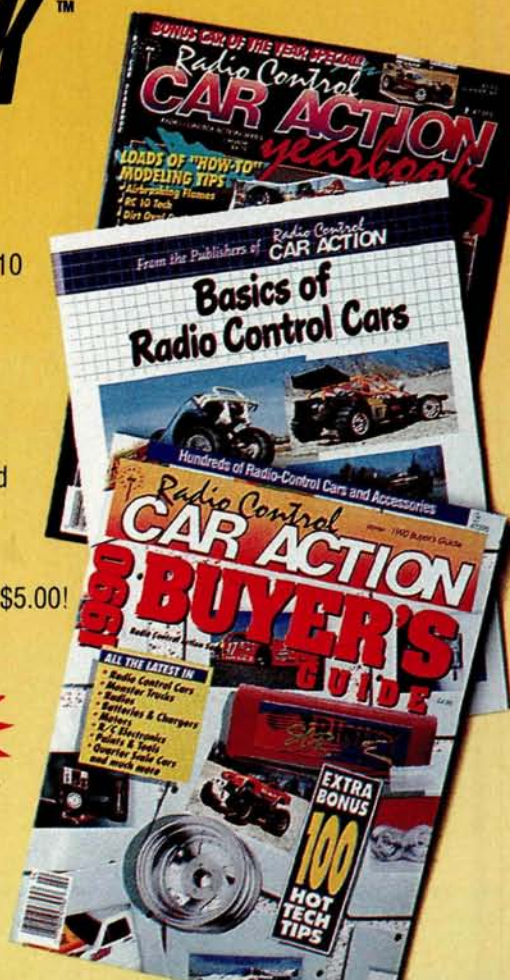
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RC10 GRAPHITE

(Continued from page 84)

mission is then attached to the chassis, followed by the suspension arms and the shocks. For the rear suspension, I used the Andy's* arms, which are essentially the same size, but are slightly lighter.

The shocks are the ones Associated has always used; I just made a few modifications. After assembling the shocks according to the instructions and filling them with some Team Losi* synthetic shock oil (30WT in the front and 10WT in the rear), I installed CRP* pressure gaskets and drilled a small pinhole in the cap of the shocks. This prevents air from mixing with the shock oil and gives more consistent damping while allowing the shock to operate almost as it did without the pressure gasket. Does it work? Everyone has his own opinion on how to set up shocks, but this is the method with which I'm most comfortable.

If you asked the team drivers how to set-up the shocks, they'd probably tell you to follow the instructions. They seem to be doing very well with this setup, to say the least. However you choose to assemble your shocks, when they're com-

(Continued on page 142)

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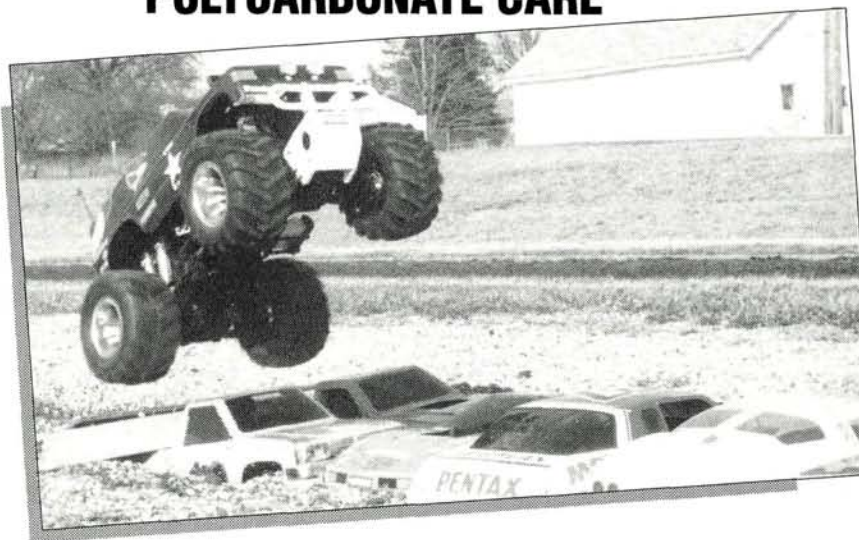
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DIRT DIGEST

by BILL O'BRIEN & BOB KANE

POLYCARBONATE CARE



FOOTBALL TEAMS DO IT; eggs do it; even erstwhile journalists in the world of R/C scale cars do it. What do these disparate entities have in common? They all scramble! My tale is woeful, but simple. I was poised (pen in hand, brain cogs whirring) to rework the bulging Kyosho USA-1 truck, when a call from the venerable Pond's office revealed that the Track Report on the USA-1 wouldn't be ready in time for this issue.

Well, I ask you, my faithful fans, what was I to do? Certainly, I couldn't talk about improving a vehicle that hadn't yet been reviewed! How would you know what I was talking about? Dastardly luck, wouldn't you say? Worse than that, I was left with blank pages where, only a short time before, there had been a full, powerful column!

So I scrambled! I yoked about the problem, while trying desperately to think of ideas I could poach to fill the space. Friends egged me on, and I fried my brain as I tried to come up with something, until I was nothing more than a shell of my former self.

So I ask you, dear readers, to understand that, if my column is slightly more

disjointed than usual, it's because of this surprise change in the order of things and my intense desire not to fall "fowl" of the editors. This is my problem: although I have many things pecking at me that might be included as hasty replacements, they're mostly "poultry" entries (get it?!), and none will eggsactly fit the bill. Still, I think I can wing it successfully.

GRIPE OF THE MONTH

I own about 40 car and truck bodies—a result of my mad desire to have off-road cars that look like something other than VW dune maulers. It's fair to say that if a company makes a polycarbonate body, I probably own at least one, and I think that such mega ownership has given me experience with most of the problems you can expect whenever you plunk down your shekels. Three problems immediately come to mind, and I'm sure you've had some of them.

Polycarbonate is a strange material, and when you cast a mold, many things can go wrong. Polycarbonate doesn't always spread evenly over the mold, so some body sections turn out thick and rigid while others are paper-thin. The thin ar-

...
eas are usually in the most recessed parts of the mold (like the small, flat space on a pickup truck between the fender and the bed).

One of the better properties of polycarbonate is that it flexes. Unfortunately, if you flex a paper-thin layer of it, it will tear as easily as paper. Every time you run your car or truck, you flex that body to new degrees, and the polycarbonate begins to tear. (I had a beautiful Toyota Baja truck body that literally came apart in my hands as I was cutting out the flash.)

CROSSING THE THIN LINE

Whenever possible, check out a body before you buy it. If you run your finger gently over the body contours, thin areas will be obvious even through the plastic wrapping. If you refuse to buy a poorly molded body, your dealer will find a reason not to order any more of them and perhaps the manufacturer will get the message before he goes out of business. If you just *have* to buy an absolutely drop-dead good-looking body that's suffering from an attack of "the thinnies," treat it carefully.

When you cut out the wheel wells and the trim, support the body by resting it on something like a bundled towel. Don't just hold one side of it and let the rest dangle, or the thin sections of polycarbonate will tear as you try to work around them.

After you've painted the body, but before you put on the backing coat (you do use a backing coat to keep the paint from looking translucent, don't you?), spray the polycarbonate paint with a thin coat of Krylon clear acrylic. This acrylic coating will protect the polycarbonate paint. Then find some epoxy paint (Black Baron* comes to mind) in the color of your chosen backing. (The usual backing colors are white, silver and black, and your choice will depend on the body color you use.)

First, on a scrap piece of polycarbon-

(Continued on page 134)

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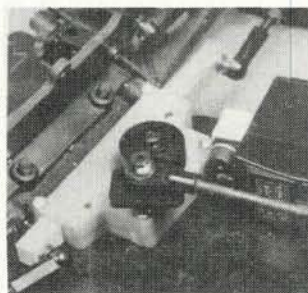


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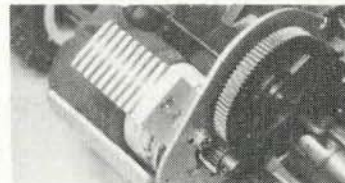


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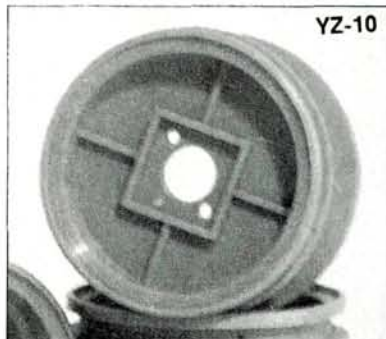


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DIRT DIGEST

ate, check that the epoxy paint won't attack it. (If it does, it will bubble up and look terrible.) If the test result is OK, spray lightly with several coats until the polycarbonate paint is covered. Put the body aside for two or three days to allow the paint to dry. (Yes, epoxy paint takes much longer to dry than the polycarbonate paints you usually use.) When the paint has dried, spray the thinner polycarbonate areas with several thick coats of epoxy paint and, again, let it dry for a few days.

The paint will toughen up "the thinies," but if that's too much work for you (or takes too much time), you can glop on some real epoxy (after you've painted and back-sprayed the body). It won't look as nice, and it will add weight, but it will work just as well (maybe even a little better). It's the easy way out.

DETAILS, DETAILS

Lack of enough detail is another problem. A few body makers are reluctant to design anything that really looks like a full-size car or truck. It seems that certain full-scale car manufacturers are demanding royalties for the privilege of replicating one of their creations. That's a shame, because nothing looks better than the clean lines of a smart-looking, recognizable body.

This means that you'll probably be missing some scribe lines for the wheel wells and perhaps for the doors or windows, as well. If you don't know by now, you'll find out soon enough that the absence of those lines will make your life hell when you try to mask the body for painting, or you want to cut away the extra polycarbonate.

You have to add the missing detail yourself—or at least as much of it as you need to finish the body successfully. How do you do that? I use a Sanford Sharpie permanent marking pen. There's a Fine Point, which gives a 1mm-thick line, and an Ultra Fine that draws a line that's only half that thickness. The fine one is great for adding the scribe lines that will help you to cut out the body accurately, and it's great for drawing panel lines that can be used as painting guides. Because the markers are permanent, the lines won't come off easily. I use Floquil's* ELO (Easy-Lift-Off) Paint and Decal remover, which works well as long as you follow the directions on the label.

What's that? You can't draw a straight

line to save your life, so how could you ever draw a wheel well? Ever hear of a compass? No, not the kind that gets you going in the right direction, but a *pair of compasses*—the tool that helps you to draw circles. Just measure the radius of the wheel and tire (the radius is the distance between the center of the wheel and the edge of the tire), set the compass to that length, and draw the circle on a stiff piece of cardboard. Put that circular cut-out against the body, use any wheel-well lines that are there as guides, and then "Sharpie-in" the new well.

If there isn't even a hint of a wheel well on your car body, you'll have to mount the chassis and use the actual wheel and tire as guides. Of course, if you're "monsterizing" an off-road car, you can use the same technique to widen an existing wheel well to make it accommodate the larger truck tire.

Sharpie pens come in a variety of colors, including red and orange. So what, right? So this: what color are taillight lenses? What color are side marker lights? You get the picture? The red works well when used on the inside of the lens, backed with silver paint and then used again on the outside. The orange looks much like the amber lens color of side marker lights and front turn signals.



RIPPED

Finally, we come to the problem of rips, tears and dents. Everyone knows you can't *really* repair polycarbonate, but we all have our own "special" way of doing it. Here are the two methods I use:

If I've just taken out the car in front of me (or the car behind me has done an equally good job!), or if I've hit a wall, I'll probably find a dent or a crease in the body. I don't want to toss it out, because

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a new one will just get creased, but I don't want to run an ugly, dented car.

I've found that Hobby Lobby's* Stabilit Express is a great body filler. Actually, it's a two-part adhesive, but when it's dry, it can be sanded as much as most polycarbonate bodies. Just clean the damaged area, sand it lightly with 220-grit wet-and-dry sandpaper, and trowel in the Stabilit. When it's dry, sand it flush with the body, and the repair is complete.

You'll have to re-paint the outside of your car, but that isn't a big deal. Use your usual polycarbonate paint; when it has dried overnight, spray on a covering coat of Krylon Clear Acrylic. Polycarbonate paints dry flat (with the exception of some candy colors), and the clear coat will put a sheen on the finish. Don't use other types of paint on the outside, because most aren't flexible (many epoxies are), so they'll crack off.

What about the cracks that appear around the wheel wells after a few uncontrolled spins around the track? Repair them from inside. Loctite* makes a parts repair kit that will work with most plastics, including polycarbonate. You'll find it in auto stores, because it's meant for the repair of full-scale bumpers and lenses. (It will probably work on exterior dents and tears, too, but I haven't tried it.)

NEXT MONTH

Whew! That's a lot of random thoughts! Next month is USA-1 month, or so I've been promised. If they go back on their word this time, I'll tell Bob about Steve Pond's brand-new desk and chair and he'll rush down to Air Age and polyurethane them.

If anyone has noticed Bob's absence in the last month or six, it's because he still works where I used to work, but without me, he gets to do his own job and a lot of what I used to do, as well. This does make him a little (!!!) busy. He'll be back in a month or so.

Until next time, keep your mind on the driving and your hand on the wheel. (If you use a stick radio, adjust as needed!) Till next time....

*Here are the addresses of the companies mentioned in this article:
Black Baron; distributed by Coverite, 420 Babylon Rd., Horsham, PA 19044.
Floquil, Rte. 30 N., Amsterdam, NY 12010.
Hobby Lobby International, 5614 Franklin Pike Cr., P.O. Box 285, Brentwood, TN 37027.
Loctite Corp., 4450 Cranwood Ct., Cleveland, OH 44128.

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660 - 674 **\$6.00** each (6 min.)
675 - 689 **\$7.85** each (6 min.)
SCE 6 cell stick packs **\$24.95** each

Sanyo 1200 SCR Cells

Individual Cells
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Matched 6 cells 490+ packs **\$32** each
Matched 6 cells 500+ packs **\$42** each
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Minitech Tires & Wheels

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B&T Racing Team We Accept Mastercard & Visa!
508 Lake Winds Trail ■ Rougemont, N.C. 27572

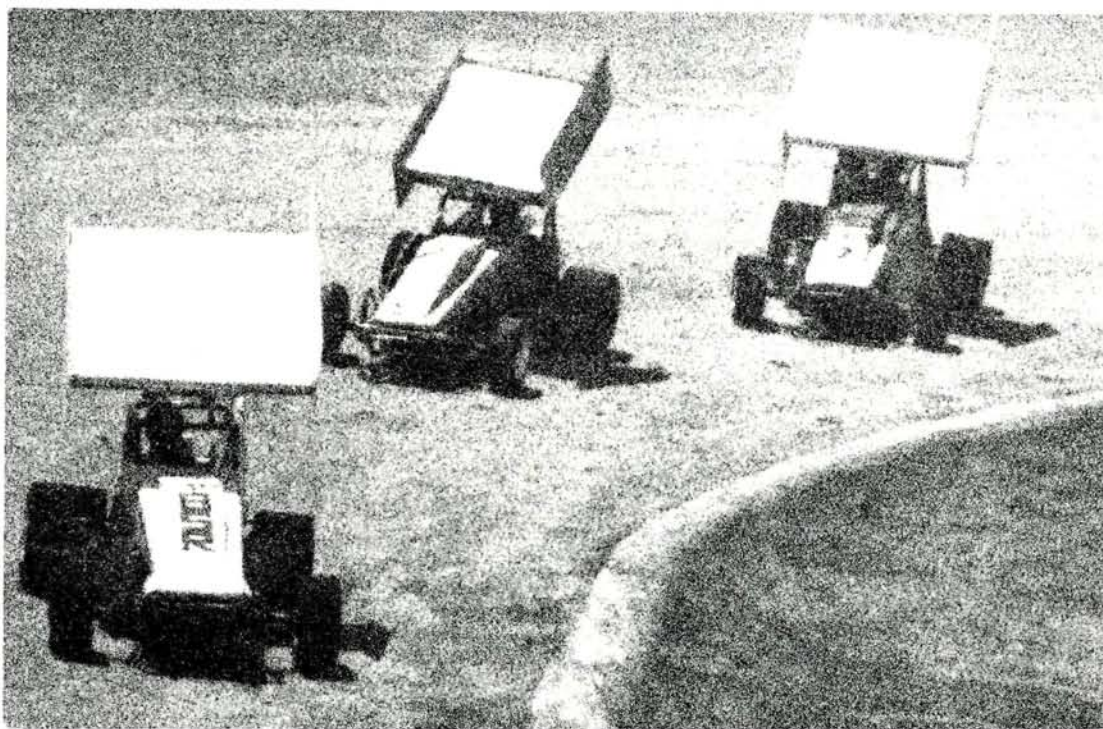
CALL 919-471-2060 12:00pm to 8:00pm E.S.T.

DIRT-OVAL BUYERS' GUIDE

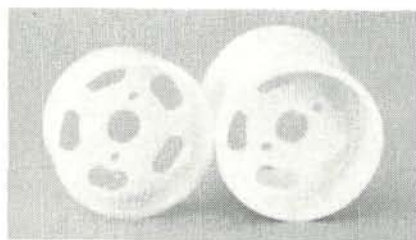
Left-turn only, please. Thank you! Why is it that some of us never want to turn right, but have to go left? Sounds like a political statement, but I'm talking about the dirt-oval disciples' compulsion to go counterclockwise as quickly as possible. There are a couple of reasons for this: fast action, a tight field, wild-looking machines drafting one another. Perhaps we do it because we like to cover the outside cars (and spectators, if possible) with a dirt rooster tail—at least, that's my favorite part!

Left-turn-only racing has become very popular, and there are many new performance goodies to help you squeeze the most out of your car and go as fast as possible. For you followers of the hypnotic pleasure of the round-and-round, we present this handy Buyers' Guide. Go straight, please, then turn left—and hurry up about it!

CC

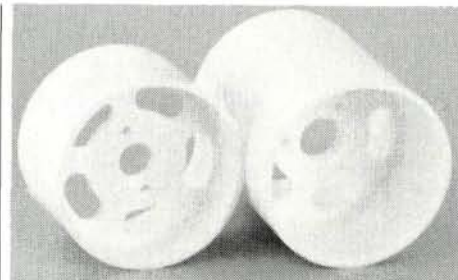


ADVANCE ENGINEERING



1/10-Scale Nylon MinMags

Nylon Mini-Mags are made with the latest high-tech materials and techniques to produce the lightest wheels for on- or off-road racing. They're available in sizes to fit a wide variety of off-road tires, as well as the full line of foam tires from Advance.
Price: \$6.95



1/8-Scale Nylon Mini-Mags

Light enough for racing, these wheels are perfect for Grand Prix or foam tires. They'll fit most popular 1/8-scale cars as well as many 1/10-scale cars.
Price: \$6.95 to \$9.95



Grand Prix Intermediate

These tires run fastest on hard clay and on dry asphalt tracks. The natural rubber gives them race-winning performance and exceptional durability.

Part no. MT18R; MT18FI
Price: \$34.95; \$29.95



Grand Prix Chevron

Super-sticky rubber compounds make these the tires of choice for loose dirt-oval racing, or for just fooling around in the street. Great durability makes these the most economical street tires.

Part no. MT18FC; MT18RC.
Price: \$28.95; \$34.95.



Grand Prix Arrowhead

Molded natural-rubber tires offer superior traction on slightly loose dirt tracks and very wet asphalt. Special rubber compounds "out-stick" and outlast foam tires by about 5:1.

Part no. MT18FA; MT18RA.
Price: \$28.95; \$34.95.



Sprint-Car Special Edition CSM

If you're looking for an inexpensive alternative to the conversion-type sprint cars, this one's for you. A great performer on asphalt ovals, this Special Edition Street Machine comes with nylon wheels, Grand Prix tires, body, wing and custom body mounts.

Part no. 312006
Price: \$174.95



RC10 Sprint-Car Conversion

Thin-wall steel tubing makes the new Sprint-Car Conversion light and strong. Kit includes roll cage, fiberglass chassis, body, wing, Grand Prix tires, and your choice of aluminum or nylon Mini-Mags. The rugged roll cage is available painted, or chrome-plated for extra durability.

Part no. 321000
Price: \$189.95

B&R RACING CHASSIS

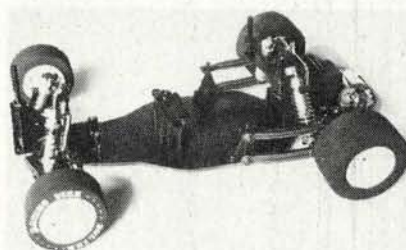


Challenger and Gambler Sprint Cars

The 1989 Challengers and 1989 Gamblers have a steel-wire brazed chassis constructed on a jig

for accurate parts placement. The hoods and tails are of Lexan. These 1/10-scale chassis can be adapted to the RC10 and will run on many track surfaces. Kits include chassis, hood and tail, headers and two RC10 adapter plates.
Part no. BR001C; BR001G.
Price: \$150

BOLINK



JR-X2 Lowering Kit

Bolink's new body-mount kit for the Losi JR-X2 allows you to adapt its oval-type bodies for dirt or pavement racing. The lowering kit brings the chassis closer to the ground for oval and flat-track racing.

Part no. BL-5290 (body-mount kit); BL-5291 (lowering kit).
Price: \$17.95; \$26.95.



Ultima Sprint-Car Kit

Turn your Ultima off-road car into a killer oval racer with Bolink's Ultima Sprint Car Kit. The kit includes two shocks, Bolink's sprint-car body with wing, mounts, decal sheet, and all necessary hardware to lower the chassis and improve handling on oval tracks.



Sprint-Car Body

Bolink's Sprint-Car Body is available in clear Lexan and comes with wing, driver and decals.
Part no. BL 2396; BL-2396-A.
Price: \$18 with wing kit and decal.

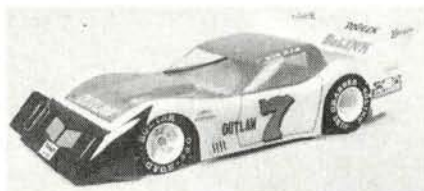


Optima Lowering Kit

Make your Optima into a road-hugging oval racer! Kit contains two shocks with a new bulkhead for lowering the chassis' center of gravity, an oval-racing body, mounting hardware and four trued racing slicks.

Part no. BL-5271

Price: \$39.95



Corvette Dirt Tracker

Add a new twist to your dirt-oval racing with the Corvette Dirt Tracker body from Bolink.

Part no. BL-2395; BL-2395P.

Price: \$18; \$26, painted.



Dirt Spoiler Kit

Bolink's new dirt-oval side-dam spoiler kit gives you everything you need to dial-in your dirt-oval car. Comes complete with full instructions.

Part no. BL-2736

Price: \$4.99



Stock-Car Decals

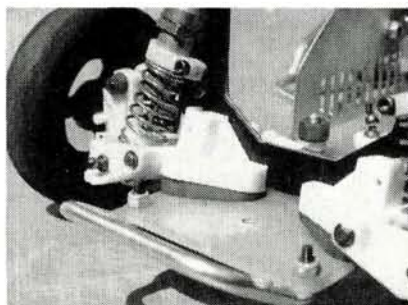
A must for every serious oval racer, these decals look just like the full-size stock-car num-

bers: one large and two small numbers in each strip. Numbers are designed for 1/10-scale cars and are available in black and white, or chrome Mylar with a black trim.

Part no. BL-2601-A

Price: \$8

CHEETAH RACING



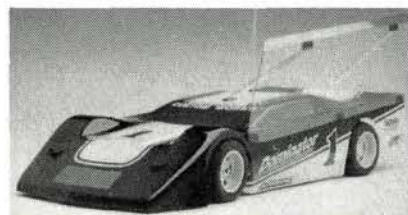
RC10 Caster Wedges

Add caster to all flat-pan RC10-based cars with these lightweight nylon wedges that fit under suspension mounts. Adds caster to Big Boy Toys' sprint cars.

Part no. 2016

Price: \$5

CUSTOM WORKS

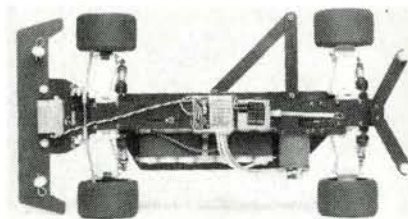


Open Comp Camaro Body

Custom Works' Open Comp Camaro Body is one of the most popular 1/10-scale bodies on the market. New ribs on the hood and rear deck add even more detail to this remarkably sleek body. Custom Works' molding quality and plastic clarity are unmatched in the R/C industry!

Part no. 9001

Price: \$20



Dominator

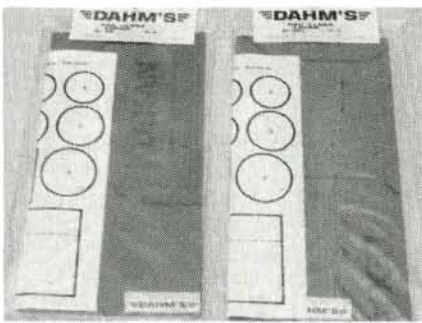
The Dominator has become the ruler in 4WD oval racing during the past three years. Several changes have been made to this 1989 kit version of the six-time National Champion. Changes include: a new lightweight oval chas-

sis; lighter front and rear drive hubs; heavy-duty dogbones; lighter kingpins; and a choice of fiberglass or graphite chassis.

Part no. 0901; 0902; 0903; 0904.

Price: \$479 to \$579.

DAHM'S RACING BODIES



Clear Lexan Sheet

Dahm's clear Lexan sheets can be used to make wings, side dams, wheel covers, body-mounting brackets, battery stays, etc. The sheets come with paper backing for easy transfer of your templates. Sizes from 6 inches x 1 foot, to 8x18 inches.

Part no. D301; D302; D303.

Price: \$2.98 to \$6.99 (depending on size).

JG MFG.

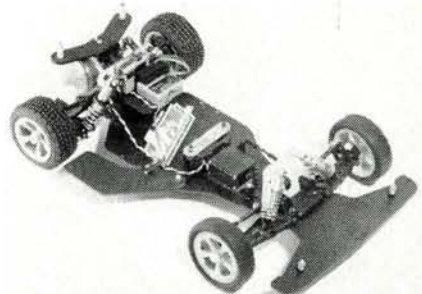


IROC Camaro Body

This sharp 1/10-scale body is designed for on-road and dirt-oval racing. Available clear or painted.

Part no. 4010; 4010-P.

Price: \$20.95, clear; \$36, painted.



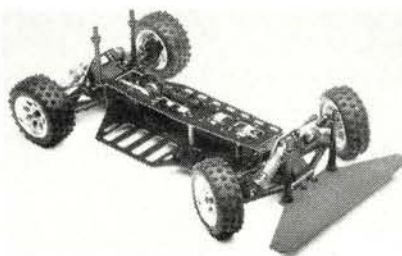
JR-X2 Oval Conversion Kit

This complete package for oval racing includes the newly designed front oval bumper, rear oval body mount, front and rear lower shock towers, body-post kit, foam body-post spacers, nerf wing and speed-control mount.

Part no. 1815

Price: \$41.95

KYOSHO

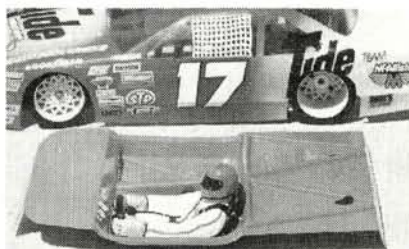


Slingshot

Kyosho's entry into the dirt-oval racing category is the new Slingshot 4WD. Features include a graphite chassis, steel-reinforced belts and fully independent suspension on all four corners.

Price: \$399
Part no. KYOC0110

McALLISTER



Stock-Car Driver and Interior

The McAllister Racing 1/10-scale stock-car driver and interior are ideal for dirt-oval concours enthusiasts. This interior will add the final touch of scale realism to your full-body dirt-oval machine.

Price: \$12
Part no. A423



Silver Bullet Sprint Car

Another authentic sprint-car body for 1/10-scale dirt oval. This is the one you've been waiting to match with the new breed of "coat-hanger" cars.

Part no. B118

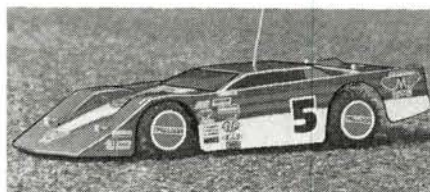
Price: \$19



Wedge Vette Outlaw Oval

Winner of the prestigious JG Oval.

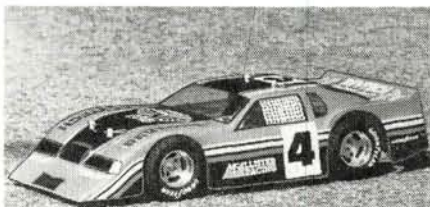
Part no. B111
Price: \$19



The X-Terminator

"X-Terminate" the competition with this wedge-shaped, Firebird, ultra-low-profile, 1/10-scale, oval stock-car body from McAllister Racing.

Part no. B-121
Price: \$20



Outlaw T-Bird

This is the big brother of the 1/12-scale Outlaw T-Bird, and it has been a concours and race winner at oval tracks around the country.

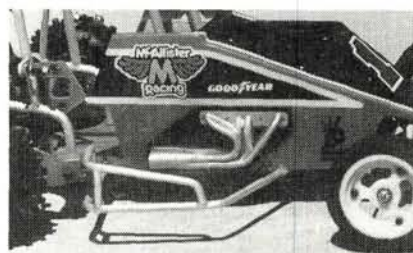
Part no. B-113
Price: \$19



Wedge Mustang

If you like Outlaw wedge stockers, this body will lead you to the winners' circle.

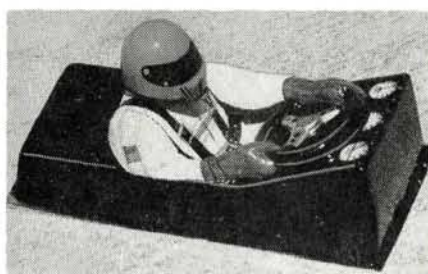
Part no. B115
Price: \$19



Exhaust Headers

McAllister Racing has changed the shape of its molded Lexan headers to this super-realistic style. They're lighter and cheaper than aluminum and can be bought separately or with the Gambler and Silver Bullet sprint-car bodies.

Part no. A-405
Price: \$2



1/10-Scale Sprint-Car Driver

Have you been looking for a sprint-car driver? McAllister Racing has an army of them. This

1/10 Scale Sprint-Car Driver is very realistic—even the helmet is molded separately.

Part no. A-419
Price: \$3.99

MOODY AUTOMOTIVE



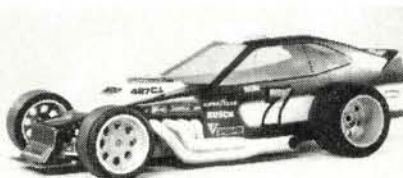
American Sprint Car

Moody Automotive offers a true, 1/8-scale, gas-powered sprint car—the American. The all-metal kit comes completely machined and ready to assemble using your .21-size model car engine and 2-channel radio. Special details include nickel-plated roll cage and nerf bars, sealed ball bearings, 6 1/4:1 gearbox, oil-filled coil-over shocks, aluminum-channel chassis, and formed ABS body parts, including wing and driver figure. Also available in 7 1/3:1 and 8 1/3:1 gear ratios.

Part no. 8000

Price: \$595; \$675 (deluxe version).

MRP



Pinto Super Modified

At on-road or dirt ovals everywhere, you'll see these low-budget, big-bore circle burners. This light, strong, roomy Lexan body will fit most off-road and any 1/10-scale on-road cars.

Part no. 30-1104
Price: \$16



ASA Camaro

The ASA Camaro is ideal for off-road oval racing. This body is also outstanding for 1/10-scale on-road oval or circuit racing.

Part no. 30-1109
Price: \$19

PRO-TRACK



Front Bumper, Rear Wing and Nerf Bars

That classy JR-X2 looks even better with Pro-Track's "Fend-Off" Kydex front bumper, high-downforce modified rear wing and those solid, round-stock swept-back nerf bars! All these accessories are designed to be functional and to look good. Pro-Track's swept-back nerf bars for the JR-X2 will fit all flat-pan chassis cars. Come in solid aluminum with a chrome-like sheen.

Part no. 073 (JR-X2 Kydex front bumper); 074 (modified rear wing); 072 (swept-back nerf bars).

Price: \$5.95 (front bumper); \$8.25 (rear wing); \$14 (nerf bars).

RCRC



Ultima Sprint-Car Conversion Kit

Here's a new Challenger Sprint-Car Conversion for the Ultima. The kit includes an aluminum roll cage, two aluminum side nerf bars, two side panels/headers, fiberglass chassis and all the necessary hardware.

Part no. 10600
Price: \$154.95



RC10 Sprint-Car Conversion

Here's a new Challenger Sprint-Car Conversion for the RC10 1988 and 1989 ROAR National Champion. The kit includes an aluminum roll cage, two aluminum side nerf bars, two side panels/headers, fiberglass chassis and all the necessary hardware.

Part no. 1020
Price: \$139.95

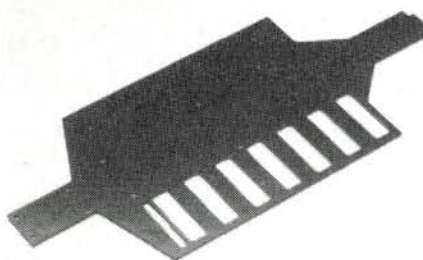


JR-X2 Sprint-Car Conversion Kit

New Challenger Sprint-Car Conversion for the JR-X2. The official commemorative signature edition Sprint-Car Conversion Kit includes an aluminum roll cage, two aluminum side nerf bars, two side panels/headers and all the necessary hardware.

Part no. 1080
Price: \$124.95

TRINITY



Optima Mid Oval Chassis

With this new high-tech chassis, you'll be able to convert your Optima Mid or the new Turbo Optima Mid SE into an oval-track race car. The chassis has all the battery slots on the left side to permit optimum weight transfer during oval racing. The chassis is of strong, graphite laminate for strength and lightness.

Part no. 8033
Price: \$65

Manufacturers Index

Advance Engineering

P.O. Box 766
Woodland Park, CO 80866

B&R Racing Chassis

9952 W. 82nd Place
Arvada, CO 80005

Bolink R/C Cars

420 Hosea Rd.
Lawrenceville, GA 30245

Cheetah Racing

10823 Amestoy Ave.
Granada Hills, CA 91344

Custom Works

3720 Easton Dr., Suite 6
Bakersfield, CA 93309

Dahm's Racing Bodies

P.O. Box 360
Cotati, CA 94931

JG Manufacturing

P.O. Box 6014
Whittier, CA 90609

Kyosho/Great Planes

P.O. Box 4021
Champaign, IL 61820

McAllister Racing

2245 First St. #105
Simi Valley, CA 93065

Moody Automotive

755 Ash St.
Flossmoor, IL 60422

MRP

18676 142nd Ave. NE
Woodinville, WA 98072

Pro-Track

9320 Betchel Rd.
Elyria, OH 44035

RCRC (Radio Control Race Center)

18240 S. Vermont Ave.
Gardena, CA 90247

Trinity

1901 E. Linden Ave.
Linden, NJ 07036

RC10 GRAPHITE

(Continued from page 128)

plete and attached to the car, you're in the home stretch; all that remains is to install the electronics and paint the body.

The no. 6030 kit, which is likely to be a racer's choice, includes the "trick" stuff like the graphite-plate chassis and the ball bearings, but there are no radio gear or speed controllers. This leaves your options wide open.

I used a Futaba* Magnum Jr. pistol-grip transmitter with the optional S132 servos and a FP-R102H mini-receiver. The steering servo is mounted to the chassis with a pair of servo mounts that are included in the kit, but they aren't drilled to bolt the servo in. The blank mounts allow the use of almost any servo (a strong point of the design), but you have to make another trip to the toolbox for a drill. Fortunately, I ordered the Futaba radio with the small receiver, as anything bigger might have been difficult to mount without having it hanging off the chassis.

I also use a Tekin Electronics* ESC700 high-frequency electronic speed controller; it's fast becoming very popular because of its excellent performance char-

acteristics. Providing power for the Graphite is a Trinity* Pushed SCR pack, but modifications were needed to fit the side-by-side 6-cell pack into the RC10. When the original RC10 was designed, the only batteries used were stick packs, which are slightly shorter. At that time, Associated never foresaw the use of saddle-style packs, but the matched packs have been around a lot longer than the RC10 Graphite. I was therefore a little disappointed that changes weren't made to the mounting location of the forward battery tray to accommodate these packs. To fit these packs, you need a pair of countersunk 1/8-inch holes just in front of the stock location. Just don't use a drill bit or countersink that you're fond of. The graphite is pretty tough on them, and the sharp edge on your tools will probably be gone when you've finished—as I found out!

After installing the Reedy* modified motor, the final step would have been to paint and mount the body, but I was lucky: I received a custom-painted body from Associated. The body is standard on the RC10 Graphite, and with the help of Curtiss Husting's painting talents, I had a sharp-looking car without having to do any of the work (except trimming)!

PERFORMANCE

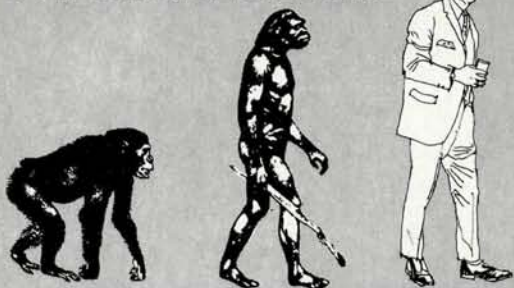
I'd like to tell you that when I ran the RC10 for the first time, I was blown away by its performance, but I can't say that because I wasn't! It wasn't that the car was any slower or less agile than previous versions, it's just that I've been racing essentially the same car for quite some time. The only difference between this car and my previous cars is that my older cars were a combination of many after-market parts. With the RC10 Graphite, Associated has produced a car for which you won't need to buy extra parts, and this keeps down the cost of racing.

The long front arms allow for smoother, extended suspension travel and the wider stance provides more stability through the turns. With the transmission work and the Jammin' Jay's diff kit (I can't say enough about it), both acceleration and cornering are substantially improved.

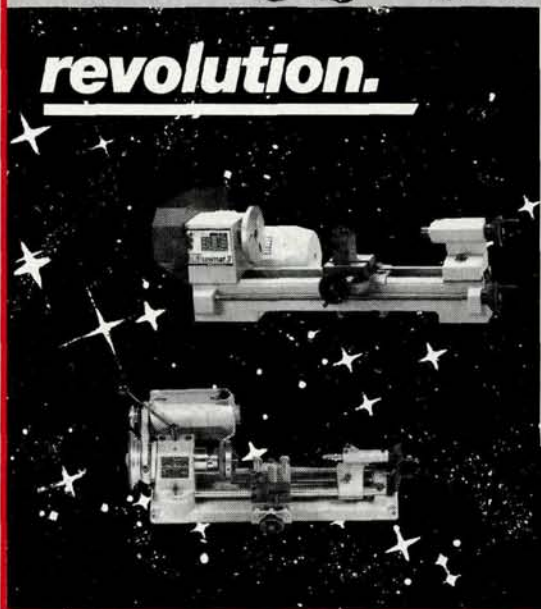
Did I have any problems, or was it a bed of roses?—yes and no, respectively! I opted to use the stock rod ends instead of heavier ball joints. The stock rods ends work very well and save a lot of weight, but after as few as three runs, they began to bind slightly. The binding was the re-

(Continued on page 148)

evolution...



revolution.



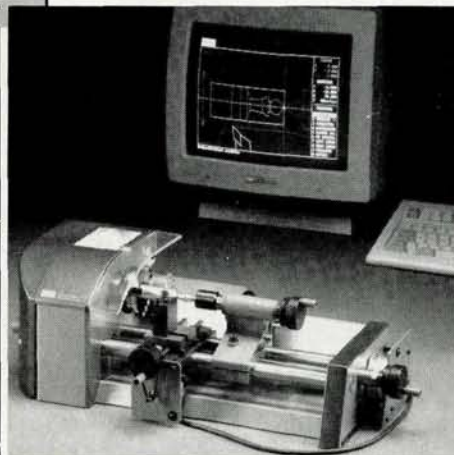
In the beginning, man used stones as primitive tools. Later he produced simple metal tools, and finally achieved mechanical precision.

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ALUMINUM WHEELS	\$74.95pr
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RC10 GRAPHITE

(Continued from page 142)

sult of dirt being embedded in the ball cups. To keep the suspension moving as freely as possible, I had to clean and lubricate the rod ends periodically.

Another glitch was that the left side universal-joint dogbone occasionally

popped out of the drive cup on the transmission (after a hard hit). A number of shims are included with the kit, and these are put onto the axle before it's slid into the hub (to move the dogbone closer to the trans); or they're put on the outside behind the wheel pin (to move the dogbone away from the trans). The dogbone must be precisely shimmed so that, at the limits of the suspension travel, it won't

bottom-out in the drive cup on the trans and bend, or pull out of the drive cup when the suspension is extended. Initially I found that, with the suspension compressed, all the shims had to be put onto the outside of the axle to prevent the dogbone from bottoming-out in the drive cup on the trans. A hard shot can, however, dislodge the dogbone. Taking one of the

(Continued on page 152)

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WINNERS CIRCLE

RC10 GRAPHITE

(Continued from page 148)

shims on both sides and putting it onto the axle before sliding it into the bearings will bring the axles closer to the trans and prevent them from popping out.

In the grand scheme of things, these problems were very minor. I've never had a car that runs perfectly right out of the

box, and if I compare the RC10 Graphite with my other cars in this respect, it ranks highly.

Despite a few glitches, my RC10 Graphite and the other RC10s rank among the world's most competitive 2WD cars. If you take the time to make all the parts work as they should, they'll combine to make one of the most nimble cars at the track.

*Here are the addresses of the companies mentioned in this article:

Associated Electronics, 3585 Cadillac Ave., Costa Mesa, CA 92626.

Dremel, 4915 21st St., Racine, WI 53406.

Jammin' Jay Products; distributed by Team Losi, 1655 E Mission Blvd., Pomona, CA 91766.

Andy's R/C Products, 466 W. Arrow Hwy., Unit K, San Dimas, CA 91773.

Team Losi, 1655 E. Mission Blvd., Pomona CA 91766.

CRP, P.O. Box 2530, Atascadero, CA 93423

(Continued on page 160)

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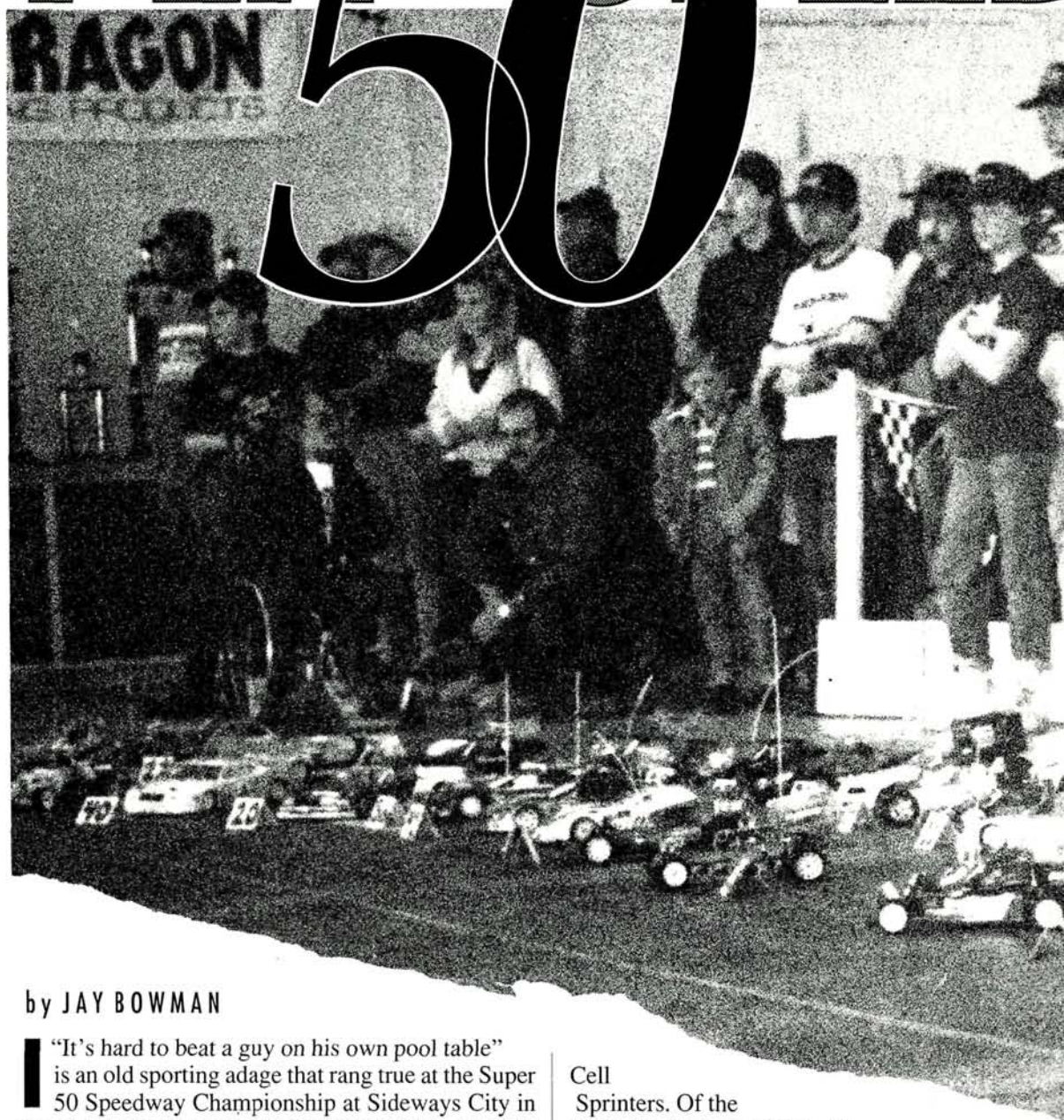
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SUPER SPEED



by JAY BOWMAN

I "It's hard to beat a guy on his own pool table" is an old sporting adage that rang true at the Super 50 Speedway Championship at Sideways City in Wayland, MI. Hyperdrive's Ralph Burch and Snuffy Smith; Bud's Products' Dwight Smith and Gary McAllister; and Region III champion Bernie Piatt, among others, discovered that some of the local racers really knew their stuff.

Friday was a day of practicing and a club race so that the out-of-towners could tune-up. At first, Ralph Burch's Hyper 10 seemed to be the car to beat—he immediately broke the existing 52-lap track record by a few seconds.

There were five classes in Saturday's qualifying: Off-Road Buggies, 52-ounce Full-Body Stock, NAS-CAR Stock On-Road, ASA Modified On-Road and 7-

Cell

Sprinters. Of the three, 4-minute qualifiers, the third was a "no-marshall" affair (see McAllister's sidebar for details). The traction of the oval's abrasive paint surface was improved by the Paragon Ground Effects/Ufra rubber combination that the qualifiers had laid down, and this led to increased speeds with every race.

Some of the tightest racing occurred in the 52-ounce Stock Class with David Hering's Dominator (reduced to 2WD) and Ralph Burch's Hyperdrive-powered Ultima. Hering, a college student, stood toe-to-toe with the World Champion as they alternated fast times. Burch finally became the TQ.

WAY

Scrubbins' Rubber



Of the approximately 120 entrants, more than half raced in the NASCAR Stock On-Road Class, and the Wayland home boys held on to the top qualifying positions until Dave Pulfer's TQ Eagle snapped up 50 laps. (During the weekend, no one managed to eclipse



Above Left: The ample Sideways City back room pits.

Above Right: The Shiltz make R/C racing a family affair with their father/daughter racing team.

Opposite Page: Sideways City Parts Department staffed by eventual NASCAR Champion Mike Johns and Lightnin' Larry Oppenhuizen

Mike "Batman" Karsen gives Dan Moynihan a taste of his Batman R/C vehicles. Bailey, the ballistic racing hound and Sideways City mascot, usually found curled up in the corner of the pits.

Lightnin' Larry Oppenhuizen's long-time 50-lap 4:00.1 track record.)

Modified ASA speed demons, however, pounced on Burch's crisp, new track record, and four drivers tossed it into the dust. For the top spot, Wimpy's Chris Schneider re-established his record with a 52/4:013. Schneider's 10L was fresh from a win at the Hot Rod Magazine Nationals in Indianapolis. (He had also dominated an IROC series of 10 races.)

A special Sideways City feature is the People's Choice Concours Car Show that's held just before the Mains. This event features divisions for Race Ready vehicles and for Rigs and Glitz. Some of the most exquisite R/C models have been featured at these shows, and the winners are chosen by the drivers and the spectators.

Complete racing rigs were displayed with tow vehicles and trailers, and they were detailed with functioning lights and horns

(Continued on page 210)

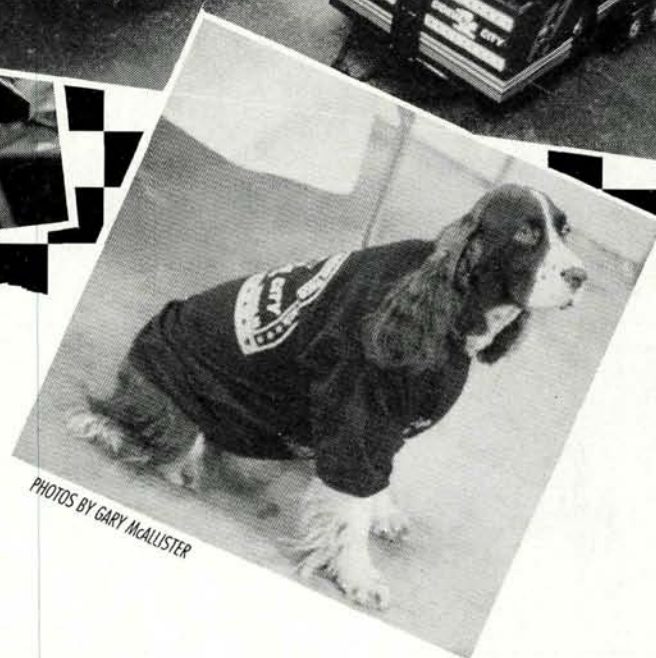
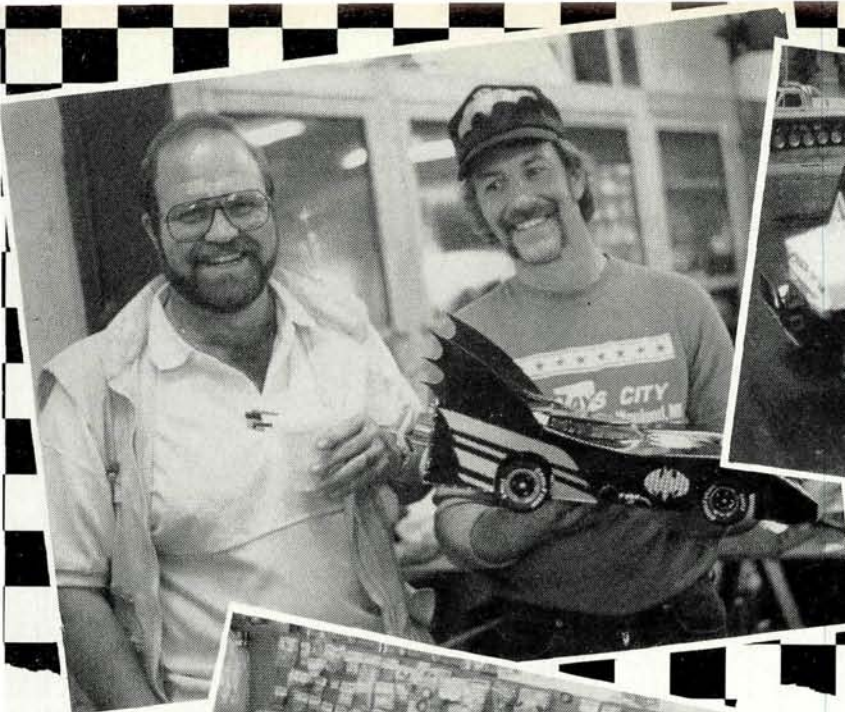
WINNERS

OFF-ROAD STOCK

Fin.	Qual.	Name	Car	Motor	Battery	ESC	Radio
1	5	Larry Webb	JR-X2	Black Magic	Gonzo	Tekin	Futaba
2	1	Chad Lyons	Traxxas	Cyclone II	Gonzo	Novak	Traxxas
3	4	Chuck Collier	RC10	Peak Perf.	Gonzo	Novak	Futaba
4	6	Joe Frisbee	RC10	Cyclone II	Gonzo	Novak	Futaba
5	2	Jamie Mason	Ultima	Cyclone II	Gonzo	Novak	Futaba
6	3	Jim Lyons	Traxxas	Cyclone II	Gonzo	Novak	Traxxas

SPRINT CARS

Fin.	Qual.	Name	Car	Motor	Battery	ESC	Radio
1	1	Josh Jameson	RC10	Wimpy	Gonzo	Novak	Futaba
2	2	Gary Myers	RC10	Wimpy	Gonzo	Novak	Futaba
3	4	Kevin Mohr	RC10	Kyosho Mega	Trinity	Tekin	Airtronics
4	5	Batman Karsen	RC10	Fantom	Q-flash	Novak	Futaba
5	3	Bill Morton	RC10	Cam	Hyper	Novak	Futaba
6	6	Jeff Todd	RC10	Parma	Gonzo	Novak	Futaba
7	7	John Johnson	RC10	Parma	Gonzo	Novak	KO



PHOTOS BY GARY McALLISTER

SPEEDWAY STOCK (52 OUNCES)

Fin.	Qual.	Name	Car	Motor	Battery	ESC	Radio	Body
1	1	Ralph Burch	Hyper-Ult.	Cam	Hyper	Novak	Futaba	Bolink Pontiac
2	4	Dave Tippet	J-Car RC10	Twister	Gonzo	Novak	Futaba	JG Outlaw
3	6	Sam Sprang	10L	Wimpy	Gonzo	Tekin	Futaba	Bolink Vette
4	5	Jamie Mason	Hornet	Cyclone II	Gonzo	Novak	Futaba	JG Outlaw
5	3	Mike Phelps	10L	Cyclone II	Gonzo	Novak	Futaba	JG Outlaw
6	2	Dave Hering	Dominator	Reedy	Losi	Novak	Futaba	Dominator

NASCAR STOCK

Fin.	Qual.	Name	Car	Motor	Battery	ESC	Radio	Body
1	4	Mike Johns	10L	Cyclone II	Gonzo	Novak	KO	Bolink LeBaron
2	2	Larry Oppenhuizen	10L	Wimpy	Gonzo	Novak	KO	Associated Lumina
3	1	Dave Pulfer	TQ Eagle	Wimpy	Gonzo	Tekin	KO	Associated Lumina
4	3	Jay Bowman	Lynx II	LightSpeed	Killer Volt	Tekin	Futaba	Andy T-Bird
5	5	Gary Myers	McAllister	Cyclone II	Gonzo	Novak	Futaba	Associated Lumina
6	6	Mike Reniger	Lynx II	Fantom	Killer Volt	Tekin	Futaba	Associated Lumina

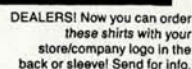
ASA MODIFIED

Fin.	Qual.	Name	Car	Motor	Battery	ESC	Radio	Body
1	1	Chris Schneider	10L	Wimpy 13	Gonzo	Tekin	Futaba	Premier
2	4	Dave Pulfer	TQ Eagle	Wimpy 13	Gonzo	Tekin	KO	McAllister
3	6	Josh Jameson	10L	Fantom 16	Gonzo	Novak	Futaba	Premier
4	2	Mike Reniger	10L	Fantom 13	Killer Volt	Tekin	Futaba	Fantom
5	3	Jay Bowman	Lynx II	Fantom 16	Killer Volt	Tekin	Futaba	Andy's
6	5	Mike Pulfer	TQ Eagle	Fantom 13	Advantage	Novak	KO	McAllister

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(Continued from page 152)

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(Continued from page 95)

During the last half of the sprint, Wright captured the lead but then slowed dramatically, so Schrock went past with

three laps to go. Garren and Bland also flashed by for 2nd and 3rd.

As the Region III Champion, my Dominator was definitely with it—chillin' the competition by three laps in qualifying and breaking the old modified track rec-

(Continued on page 162)

from Robic

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BLOOMINGTON GOLD

(Continued from page 160)

ord with 27 laps. In the feature, doubters saw a repeat performance when my Andy's 'Vette (with the TRC TM/Radial advantage) put three laps on 2nd- and 3rd-place Dan Douglas and Ron Gould.

2WD MODIFIED OPEN CORVETTE

Jim "Iceman" Dieter was unable to attend, but his presence was felt through R&R Hobbies' Raymond and Michael Weast, who brought along his rides and put them to good use. Raymond attempted to destroy the new Dieter-designed car but eventually got it hooked-up and TQ'd (25 laps and a new track record) with this innovative direct-drive rocket.

Raymond had a rocky start in the main event, but quickly worked his way up to 2nd. Privateer Phil Goginsky (still gloating from his Stock-Class victory) was sliding his Losi-powered RC10 around the corners at a heady pace. At the 2-minute mark, Goginsky bobbled and Raymond slipped by for a short-lived lead. Goginsky regained the lead five laps later, but the dash to finish was close, with six drivers finishing on the lead lap. Race Direc-

(Continued on page 164)

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BLOOMINGTON GOLD

(Continued from page 162)

tor Paul Reeve slipped by Raymond and dropped him to 3rd at the buzzer. "Bad Dude" Goginsky captured both Stock and Modified honors for the event and probably picked up a sponsorship.

4WD MODIFIED OPEN CORVETTE

Check this out! Rockin' Rod Galloway decided that he needed only one qualifier so he made the scene with his Revtec Dominator only on Sunday. In his single run, he TQ'd with 29 laps—two laps over the track record! He wasn't the only speed merchant, because my Phantom Dominator clicked off the fastest two laps at 7.1 and 7.8 before losing a wheel.

Don't forget last year's champ and old record holder, Jim Hock; his CAM pumped Dominator put him 2nd on the starting grid for the Quad City Outlaws.

Galloway left the blocks in a major rush, pulling me, Hock and Michael Weast (of R&R Hobbies) along in his slipstream. Galloway kept a torrid pace averaging 8.4-second laps, but with clear sailing ahead, a small "brain-cramp" put him into the turn 2 infield and toasted his ride. Like Derrike Cope, Weast took the advantage and the lead with that Dieter prep Dominator. He had followed Galloway through traffic, but elected not to enter the infield, because he had business to take care of—Jim Hock. Hock was breathing down Weast's neck, and Bowman was working his way from the back with fast 8.1-second laps. Time ran out and Weast pitched his car into victory lane, with Hock 1 second back and Bowman in 3rd.

ZR-1 CORVETTE CHALLENGE

Racing wasn't over. The TQs in each class were to race identically prepared Kyosho ZR-1 gas-powered Corvettes provided by the Bloomington Gold Club. The winner of the event would take home a ZR-1!

Team Kyosho worked feverishly to keep the five gas-guzzlers running in the heat. A rolling start for Rod Galloway, Ray Weast, Phil Goginsky and Ivan "Iron man" Taylor produced interesting results. The ZR-1s were set up identically, but not for dirt oval! Their glow-plug-ignited engines provided more than enough horsepower, but their spiked tires made handling rather difficult. At the finish Ivan Taylor kept his Corvette running and was ecstatic at winning a ZR-1.

(Continued on page 172)

WHAT'S NEW



COVERITE Windowmask

Coverite announces a new product for masking polycarbonate car windows—Windowmask. Instead of having to apply strips of tape, you can cut a complete window out of this BodyShop product, which comes in handy 6x12 1/2-inch sheets. Included are easy-to-follow instructions that were prepared by Motion Graphics' Richard Muise, who's considered to be America's number-one painter of polycarbonate car bodies. Windowmask will cut your time—and aggravation—in half. Paint won't leak underneath, and paint edges will be razor-sharp.



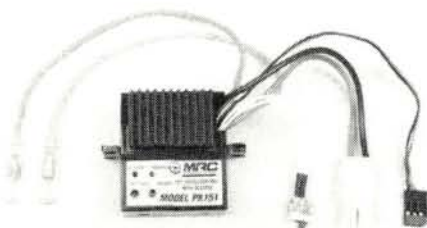
BodyShop Aerosol Paint

Coverite's new R/C car division—the BodyShop—offers special aerosol paint cans with patented spray-gun-style nozzles that meter the paint flow and disperse it through a narrow fan-shaped opening. This creates a mist that dramatically reduces runs. The unique paint formula was developed specifically to bond well to polycarbonate, and it survived exhaustive tests of its

strength and flexibility without flaking. Used by leading custom R/C car painters, BodyShop paints come in 12 colors: Whizzer White, Red Hot, Orange Orange, Varoom Maroon, Mid Ocean Blue, Vader Black, Mellow Yellow and five metallics—Bruiser Blue, Gold Rush, Nevada Silver, Smokey Gray and Slightly Blue. Each can holds 4.75 ounces—more than the competition's and plenty to complete a 1/10-scale car.

Price: \$3.75

For more information, contact Coverite, 420 Babylon Rd., Horsham, PA 19044.



MODEL RECTIFIER CORP. Electronic Speed Controller with Reverse

MRC's new Gold Label Electronic Speed controller is one of the most advanced models available for model cars. This variable-speed-forward/one-speed-reverse unit comes with motor connectors to fit many popular R/C vehicles, and it has a servo connector that fits MRC and Futaba R/C systems with J connectors. It eliminates the need for a receiver battery and switch, and it includes a braking circuit. The construction's surface-mount devices make it rugged, and the on/off switch is safe and convenient. The unit's maximum continuous current is 80 amps for forward and 40 amps for reverse; maximum peak currents are 320 and 160, respectively. Voltage input is between 7.2 and 8.4 volts with 6- to 7-cell batteries. The controller measures 1.81x1.59x1.1 inches and weighs 2.7 ounces.

For more information, contact MRC, 200 Carter Dr., P.O. Box 267, Edison, NJ 08818.



TRACK MASTER Dogbone Straightener

This straightening tool will make your old dogbones as good as new! For added durability, it's constructed of hardened, black, oxidized steel.

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Price: \$14.95

For more information, contact Track Master, 1466 Pioneer Way, #10, El Cajon, CA 92020.



KYOSHO Porsche 911 Turbo

Kyosho announces a realistic 1/10-scale model of Porsche's world-class sports car—the 911 Turbo. Based on Ultima's proven 2WD chassis design, it accepts all hop-up parts for the Ultima. Features include an independent suspension with oil-filled shocks, an accurately molded polycarbonate body, radial tires and scale wheels. This realistically detailed car is 21.3 inches long, 9.6 inches wide, weighs 3.9 pounds and has a 10.7-inch wheelbase. A mechanical speed controller and a stock LeMans 05 motor are included.

Part no. KYOC0171

Price: \$199.95

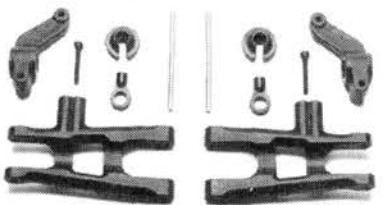
For more information, contact Great Planes Model Distributors, 1608 Interstate Dr., Champaign, IL 61820.



GATES ENERGY PRODUCTS Millennium Power Cells

The new, rechargeable Millennium Power Cell family includes traditional round cells (AA, C, D, 9-volt and AAA) and camcorder batteries.

For more information, contact Gates Energy Products, Inc., P.O. Box 114, U.S. Highway 441 N., Gainesville, FL 32602.



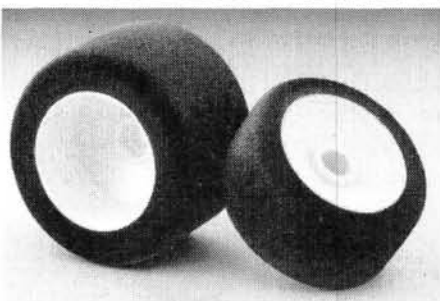
RPM JR-X2 Rear Arm Conversion Kit

This complete kit from RPM converts the JR-X2 rear five-link system to use light, smooth-working A-arms, which are sleek, strong and very functional. The hinge pins are perfectly aligned with minimum clearance. The two shock-mount positions are aligned with the shock tower. The kit includes rear outside carriers, hinge pins, spring cups, ball cups, shock-mount screws and easy-to-follow instructions. All RPM products are guaranteed not to break!

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For more information, contact RPM, 14978 Sierra Bonita La., Chino, CA 91710.



PARAGON Centerlines with PD Posittrak Tires

PD Posittrak tires took the 1/12 Triple Crown series by storm this year, and they'll be on many U.S. cars at the 1/12 World Championships in Singapore. Now these high-performance tires come mounted and trued on Paragon 1/12 Centerline rims, which are light and made of a tough nylon. Send \$2 for a complete catalogue.

For more information, contact Paragon Racing Products, Dept. CA2, 690 Industrial Circle So., Shakopee, MN 55379.



McALLISTER RACING Pro Stockers

Straight line fever! Don't blink, or you'll miss these sleek Pro Stockers in the scale quartermile! McAllister Racing's Firebird, T-Bird and Lumina bodies are available with the Pro-Stock aero scoop molded-in, and they fit standard-width 1/10-scale chassis. Look for the narrow Baretta that's coming soon.

Part nos. B-140 (Firebird); B-139 (T-Bird); B-138 (Lumina).

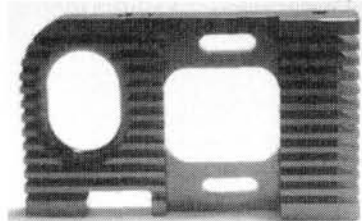
For more information, contact McAllister Racing, 2245 First St., Unit 105, Simi Valley, CA 93065.



NAVCOM Programmable Digital Cell Tester

Navcom's industrial-grade, self-contained, professional Cell Tester includes a highly regulated power supply, and eight-cell rack, an integrated computer, display, programming keypad and printer interface. Charge and discharge cycles are completely programmable, and measurements are given for eight important cell characteristics. Cells labels are individually stamped with the date and time. This system easily expands to 24 cells.

For more information, contact Navcom, Inc., 350 N. Main St., Huron, OH 44839.



MAGIC MOTORSPORTS Heat-Sink Motor Mount

This purple, anodized-aluminum motor mount for the RC10L and 12L has heat-sink fins to help your motor run more coolly.

Part no. MM504

Price: \$39.99

For more information, contact Trinity, 1901 E. Linden Ave. #8, Linden, NJ 07036.

WHAT'S NEW



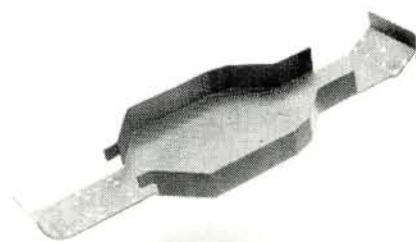
PARMA Lunch Box Wheelie Wheels

A hot new accessory is available for your Tamiya Lunch Box—Parma's Dual Wheelie Wheel replacement. These wheels are designed to supplement the original single wheel, and they're easy to mount on the existing bracket. No drilling is necessary!

Part no. 12594

Price: \$6.50

For more information, contact Parma International Inc., 13927 Progress Pkwy., North Royalton, OH 44133.



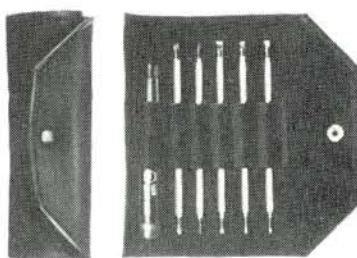
HORIZON RC10 Graphite Chassis Tub

New from Horizon Hobby Distributors and Fusion Speed, this 100-percent graphite RC10 chassis tub is stronger than those made of graphite composites and weighs 3 ounces less than aluminum ones. This model retains the original design's high sidewalls, which interlock the front and rear suspensions to give the chassis exceptional torsional rigidity. Because it's made of graphite, it flexes under extreme loads and will return to its original shape without being bent or tweaked. It's so strong, it's guaranteed: if you break an unmodified Fusion Speed chassis—no

matter how fast you were going or what you hit—the company will replace it for nothing. This chassis matches the holes on stock RC10s, so conversions are easy.

Price: \$99.95

For more information, contact Horizon Hobby Distributors, Inc., 3102 Clark Rd., P.O. Box 6029, Champaign, IL 61821.



BONDHUS Interchangeable Precision Tool Sets

Wiha tools now offers three interchangeable screwdriver sets in its popular line of precision hand tools. Each set includes interchangeable blades (with two tip styles on each) and the distinctive Wiha tapered handle, which is molded on and has a fingertip rotation cup on the end for added control. For high quality and long life, the blades are hardened and steel-plated; the precision-tolerance tips are of black oxide. The kits come in durable roll-up pouches, and their compact size makes them perfect for taking to the field. All Wiha products are available in sets or as individual pieces.

Part no. 26990, a 4-piece set containing the Wiha handle and three slotted/Phillips blades; no. 26991, a 6-piece set, has the handle and three slotted (1.5 and 3mm, 2 and 3.5mm and 2.5 and 4mm) and two Phillips (000 and 00, 0 and 1) blades; no. 26692, an 11-piece set, includes the handle, these tips and five more hex/ball sizes.

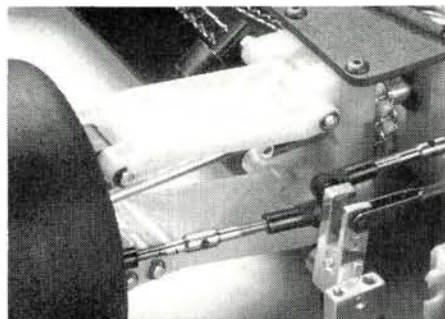
For more information, contact Bondhus Corporation, 1400 E. Broadway, P.O. Box 660, Monticello, MN 55362.



JR RADIO HD2C

The new HD2C is an economical, 2-channel, AM radio system. For convenience and versatility, this radio offers interchangeable frequency crystals and trims on both channels. It has an ABC&W receiver and BEC (battery eliminator circuitry), and it includes two standard JR 507 servos. The HD2C is affordable and great for beginners.

For more information, contact Hobby Dynamics Distributors, 4105 Fieldstone, Champaign, IL 61821.



CUSTOM WORKS Pro Suspension Arm

Custom Works' Pro Suspension Arm fits the Dominator and improves suspension and steering response. It's made of nylon and can be dyed any color.

Part no. 3011

Price: \$5.50 for 2

For more information, contact Custom Works, 3720 Easton Dr. #7, Bakerville, CA 93309.

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BLOOMINGTON GOLD

(Continued from page 164)

We all appreciated the fine efforts of the Midstates R/C Car Club and R&R Hobbies. Because of the exceptional organization by Bloomington Gold and the superb racetrack they've put together, next year's event will probably attract even more entrants.

Following the caravan of Corvettes as it left the city, we felt we had seen enough of them to last a lifetime—or at least until next year's Dirt Oval!

ROAR PAVED OVAL NATS

(Continued from page 66)

fied program would be run to the end. Unfortunately, most of the competitors had already headed home (because of the bad-weather delay), but the remaining racers put on a great show.

1/12 MODIFIED A-MAIN

Shortly before the bewitching hour, the much-awaited 1/12 Modified A-Main cars were brought to the line. The drivers were reintroduced, and reigning National

(Continued on page 186)

New Champ 500 Wheels

Now there's a completely new style of Sees wheels for your truck or car...the Champion 500 series.

With simulated lug nuts, wheel rivets and lightening holes, these one-piece aluminum wheels are about as scale as they come. And like all Sees wheels, they're precision made on computerized equipment for the lowest weight, highest strength, most accurate concentricity...and best looks.

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Directional Spoke



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Champion 500

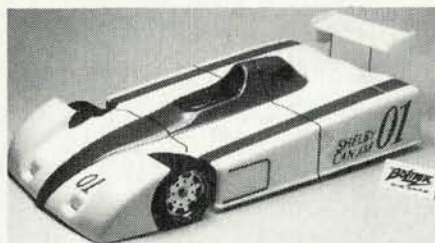


For a complete catalog, send \$2.00 to Sees Precision Machine Works, 1414 W. 134th St., Gardena, CA 90249

Exclusively distributed through Horizon Hobby Distributors, Inc.

WHAT'S NEW

Descriptions of new products appearing on these pages were derived from press releases supplied by the manufacturers and/or their advertising agencies. The information given here does not constitute endorsement by **Radio Control Car Action**, nor guarantee product performance or safety. When writing to the manufacturer about any product described here, be sure to mention that you read about it in **Radio Control Car Action**.

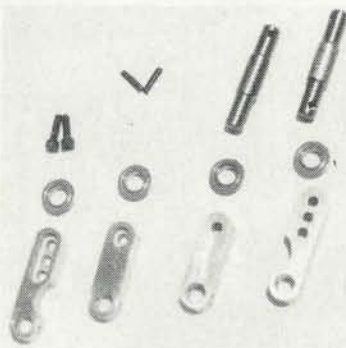


BOLINK

1/10-Scale Shelby Can-Am

Bolink has accurately reproduced Carroll Shelby's elusive new SCCA Can-Am body in 1/10 scale—the first new body to be made in this style in several years. The Can-Am is sleek, aerodynamic and looks unusual. It should be very popular with road-racing enthusiasts. For the latest catalogue/price sheet and a free "He who dies with the most toys wins!" bumper sticker, send \$3.

For more information, contact Bolink R/C Cars, Inc., 420 Hosea Rd., Lawrenceville, GA 30245.



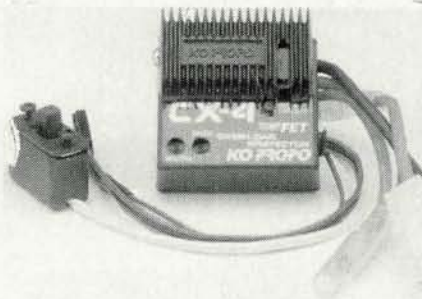
QUANTUM MECHANICS Clod Buster Steering Improvement Kit

Quantum Mechanics introduces its hottest new product for Clod owners who demand better steering. With durable machined-aluminum components and ball bearings, the Clod Buster Steering Improvement Kit allows frictionless operation. The kit replaces servo-savers, comes partially assembled and can be bolted on without Clod modifications. It will make your Clod Buster steer like the real thing!

Part no. 1301

Price: \$79.95

For more information, contact Quantum Mechanics, 63 S. Capitol Ave., San Jose, CA 95127.



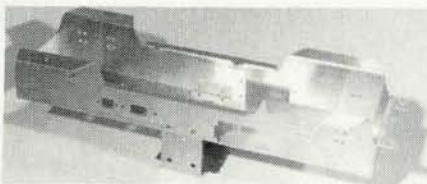
KO PROPO CX-IV Tempfet ESC

The CX-IV's high-tech features include: Tempfet design with high-temperature shutdown protection, a powerful LogicFET brake, built-in pulse checker, heat sink, dual-BEC system and an easy-to-follow instruction manual. Specifications: 300-amp maximum surge current; 75-amp maximum continuous current; .021-ohm resistance; 1.5x1.26x.59 inches; .95 ounce. The CX-IV Tempfet ESC is for 6- or 7-cell racing and comes with a KO Propo connector. For use with Airtronics radios, order adapter no. 424072; for use with Futaba J and G connector radios, use no. 424071 and 424070, respectively. Adapters cost \$4.98.

Part no 424074

Price: \$132.95

For more information, contact Global Hobby Distributors, 18480 Bandilier Circle, Fountain Valley, CA 92728.



ESP MANUFACTURING Clodzilla Aluminum Chassis

Designed as the ultimate Clod Buster accessory, ESP's new aluminum chassis is a one-piece construction that readily accepts all the stock mounting hardware, including battery doors.

Part no. ESP016

Price: \$99.95

For more information, contact ESP Manufacturing, 7105 Virginia Rd., Crystal Lake, IL 60014.



RF TRONICS Precision Ni-Cd Battery Device

RF Tronics' Cad-Cycler solves the problem of battery memory! It restores a battery pack to its full amp/hour capacity by properly discharging it to a precise, recommended level—usually in three cycles—and repeated use will maximize your batteries' life. The Cad-Cycler can be used on any battery, as long as the number of cells in the pack matches the model number. (Models CC-4, 5 and 8 discharge at 500 mA; models CC-6 and 7 discharge at 600 mA. All are color-coded for easy identification.)

This hand-held, solid-state device needs no external power source and is protected against reverse polarity. It includes red flashing "min" and green "max" LED load indicators, and the screw terminals on the battery and charger ends allow the use of any connectors. A built-in switch allows easy discharge/charge selection; a beeper signals the end of discharge; and the case is impervious to glow fuel. This unit converts any charger into a battery cycler, and it stops discharging automatically when the battery voltage drops to a certain level. All models carry a full 6-month warranty against defects in material or workmanship.

For more information, contact RF Tronics, P.O. Box 718, Agawam, MA 01001.

ROAR PAVED OVAL NATS

(Continued from page 172)

Champion(s) Kent Clausen and/or Dwight Smith were loudly cheered/booed (depending on your point of view!). With the computer up and individual lap counters assigned, we finally had a race.

From his 8th starting spot, Tony Neisinger made a major-league move below the racing line going into turn 1! Unfortunately, the only way he was going to hit the apex was by throwing out an anchor. Although he came out of the turn in the lead, he washed out high into the marbles, and the pack went by without incident.

Clausen took the early lead, with Smith and Rott in hot pursuit. With the pack settling in, Dobson made his move and hooked right up on Clausen. This dropped Smith back to 3rd at the 1-minute mark. Clausen and Dobson began to pull away. They had the field a lap down by the 1:45 mark and showed no sign of letting up! Jimmy Simmons was the first out with mechanical problems at 2:55. Clausen and Dobson were putting on a driving clinic; by the 3:15 mark, they had put the field another lap down! Smith, Mike McBride and Rott hooked up in their own battle for

2nd, well off the pace.

It appeared that Dobson had the horses to get by Clausen, but Clausen kept his line, and Dobson was content to wait for the right spot to make his move. Flying around at a staggering pace, these two had the crowd into it. Dobson finally found his opening at the 4:25 mark, when Clausen went high in turn 2 trying to get around a back marker. The hunted was now the hunter, and he was out for blood! With 10 seconds left, Clausen tucked in tight on Dobson in turn 4, and they collided. Dobson spun down the front straight, but Clausen "saved it" and went on to defend his National Championship. Would there be a rubber match? Just kidding! Dobson's chance at a sweep came up a few seconds short. Dwight Smith held off McBride and Rott; they took 3rd, 4th and 5th, respectively.

At the impromptu awards ceremony shortly after midnight, the 1990 National Champions were crowned. An event of this size isn't run without a lot of help from dedicated race fans. I'll recognize a few of them here: Linda Jordan for her tireless efforts, under difficult circumstances, to handle the scoring; the "tech" boys—Dave, Daryl, Joe, Drayton—and

last, but not least, "Pop" and Roy Kelle for hosting the event. Y'all come back now, ya hear!

KYOSHO JET STREAM

(Continued from page 103)

holes in the hatch just in front of the instrument panel. Although the GP-10's water-cooling system works well, a little ram air circulating inside the boat won't hurt.

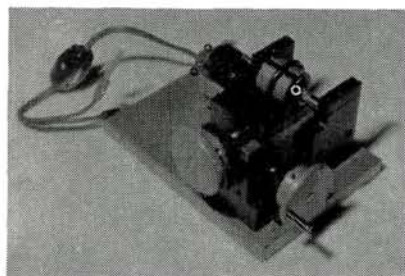
The procedures for starting and adjusting the engine are excellent. Newcomers to glow-engine operation should have no problems, even though Kyosho informs us that "knowledge of how a glow engine operates is very beneficial to the first-time enthusiast of a gas-powered R/C car"! Great, what about us boaters?! Seriously, you won't go wrong if you follow the instructions.

PERFORMANCE

Running the Jet Stream GP-10 is a ball! All you need to get this little beauty going is some glow fuel and four D cells. The battery holder that's supplied in the

(Continued on page 194)

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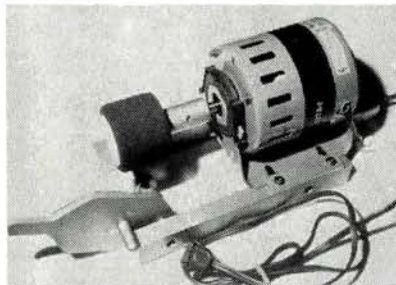
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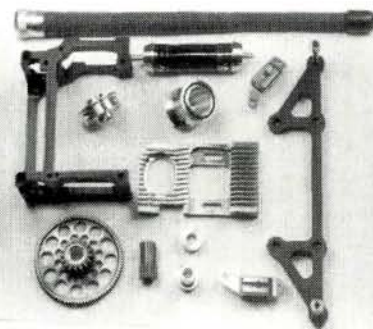
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KYOSHO JET STREAM

(Continued from page 186)

kit comes complete with alligator clips for connecting it to the engine. When you install the batteries, make sure all the positive (+) ends face upward; this will supply 1 1/2 volts, plus sufficient amperage for ignition. A higher voltage would probably burn out the engine's glow plug, so be careful.

I suggest that you buy a gallon of glow fuel, because it's much less expensive in that quantity. You'll use it all anyway, despite the Jet Stream's small (but adequate) fuel tank.

My first trip to the lake this year was also the first time out for the Jet Stream. After fueling-up and checking that the radio response was in the direction I was commanding (you know, stick to the left gives left rudder and vice versa), I was ready to fire-up. I really appreciated the little engine's recoil pull-starter. You won't see this feature on many boats (except for the weedeater-powered variety), but it sure makes starting the O.S. simple! It eliminates the need for an electric starter, which will inevitably come on your next, larger glow boat.

(Continued on page 196)

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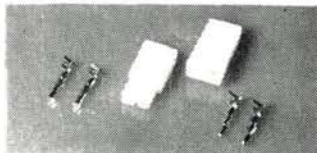
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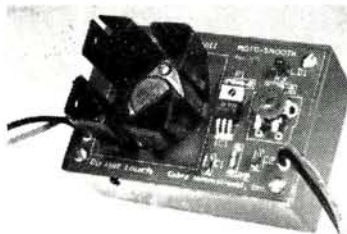
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KYOSHO JET STREAM

(Continued from page 194)

Moving the throttle stick fully aft positioned the carburetor barrel in the idle position recommended for starting. After a few pushes on the fuel tank's clever "injection" pumps (to fill the fuel line and prime the engine), I connected one alligator clip from the starter battery to the tip of the glow plug, and the other to the carburetor to provide a ground. After a few pulls on the recoil starter, the O.S. caught and stayed running. I adjusted the needle valve, disconnected the battery clips and launched the boat.

Opening the throttle wide produced instant acceleration, and in seconds, the little yellow rocket was flying over the lake's mild chop! This boat is extremely quiet and very maneuverable. To break-in the engine better, for the first few runs, I backed off the throttle to about half and tried only occasional bursts of high speed to see what the boat could do.

After using about six tanks of fuel, I opened it up and was immediately impressed by the acceleration and the handling. I attempted some sharp turns, and

the boat showed no tendency to swamp or stall. With the equipment installed as shown, the balance is nearly perfect; when it's dead in the water, the boat displays only a slight stern-low stance. I positioned the drive unit, which is adjustable for both depth and pitch angle, to suit the slight chop on the water. On subsequent runs, little of the hull touched the water while the boat was at speed.

The Jet Stream GP-10 is fun! It gives newcomers to R/C boating a painless way to try glow-boating, while offering experienced modelers a small, yet high-performance, design to relax and enjoy while they build up the courage to run a fire-breathing monster. It's also a great way to let your family experience the fun of our hobby. Take a look at the Jet Stream GP-10. Methanol motivation sure makes a difference!

**Here are the addresses of the companies mentioned in this article:*

Kyosho/Great Planes, P.O. Box 4021, Champaign, IL 61820.

O.S./Great Planes Model Distributors
Pactra Coatings, 1000 Lake Rd., Medina, OH 44256.

Hobbypoxy (Division of Pettit Paint Co., Inc.), 36 Pine St., Rockaway, NJ 07866.

Futaba Corp., 4 Studebaker, Irvine, CA 92718.

Andy's

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NEW RELEASES



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*Andy's R/C Products is introducing the first of a number of injection molded graphite products to come in the near future. The first product to be released is part #3480, a Molded Graphite Chassis for the RC-10. The molded graphite chassis replaces the original (208 grams) aluminum pan. The graphite chassis weighs only 151 grams. Less weight means longer run time. The chassis design features side rails for incredible strength and rigidity. The chassis is designed to bolt up to the RC-10 with no modifications. **Suggested Retail \$59.95***

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7TH ANNUAL JG OVAL

(Continued from page 121)

tried to pass on lap 12. The attempt wasn't clean, and he lost ground. He collected himself, though, put some Revtech power to the ground and caught up with Smith again. Smith went wide, and Riesbol ducked underneath to take the lead. Riesbol then collided with a back marker, and Smith passed him again. On the same lap, Riesbol slipped under Smith in the midst of six—yes six!—other cars and stretched his lead while Smith struggled with traffic. Smith then tangled with a back marker, and Landgraff slipped through for 2nd. Riesbol won by just under 7 seconds; Landgraff held on for 2nd; and Smith rounded out the top three. What a game of cat-and-mouse!

In his first Main, Chip Riesbol had many problems, and things didn't get any easier: in the second Main, he was constantly harassed by back markers. A picture of this Main could make a poster for a junkyard ad: there were more crashes in 4 minutes than there are in 4 months in New York City traf-

(Continued on page 206)

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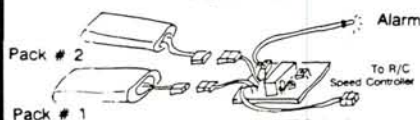
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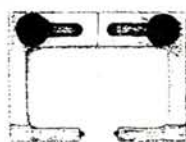
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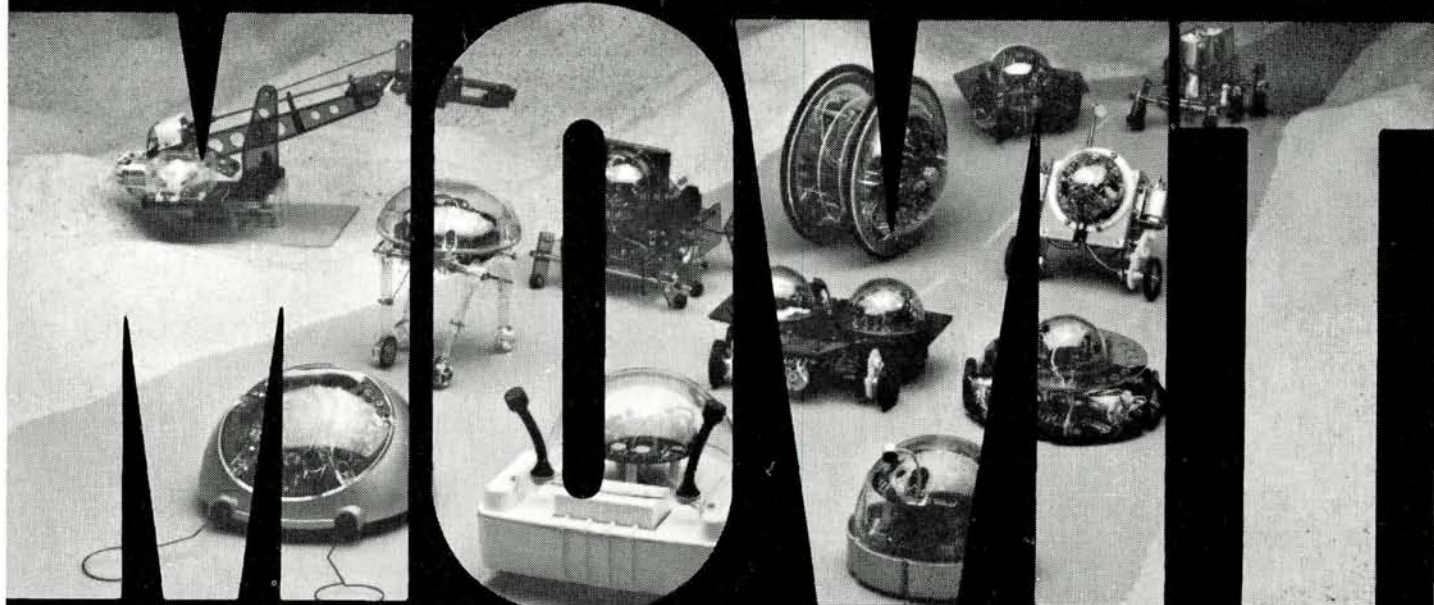
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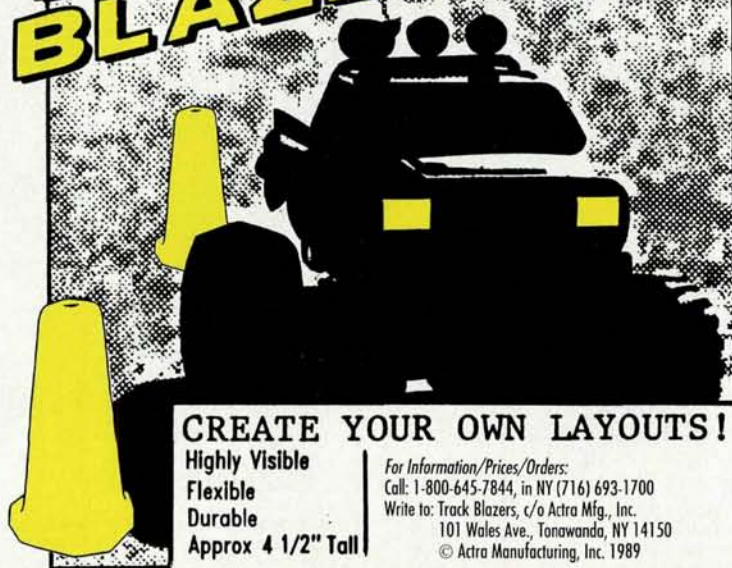
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7TH ANNUAL JG OVAL

(Continued from page 206)

man beat Martin Buchanan to the finish line by only .04 second to take 3rd.

The start of the second A-Main was much less eventful; everyone managed to get through the first lap without any major problems. Strawn took the start and led in the first lap. Coming into the fourth turn on his second lap, though, he experienced some radio "glitches," which took him off his race line and back into the pack. Hawkins assumed the lead and ran away with it until he went extremely wide at the 30-second mark. Smith ducked inside and took over the lead. After six laps, the radio problems in this one corner miraculously cleared up, and Strawn began another comeback. He worked through traffic, throwing caution to the wind. Though it was a gallant charge, it was too late. The horn sounded, and Smith crossed the line 2 seconds ahead of Strawn to take the win. Russ Hawkins finished 3rd.

The streak continues! Strawn's 1st- and 2nd-place finishes were good enough to give him his fourth straight title! Hawkins edged out Martin Buchanan for 2nd.

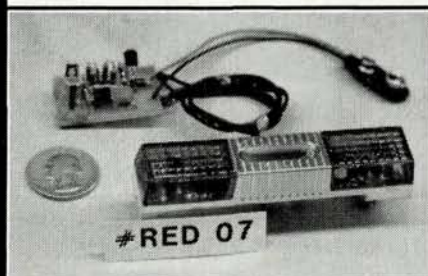
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It was finally over, or was it? Not by any stretch! It was time for the speed run—a 2-minute race that pitted the four fastest qualifiers overall against each other in a race with *no* rules. The participants?—Russ Hawkins, Chris Smith, Sean Young and Curtis Strawn. The format was a rolling start followed by 2 minutes of no-holds-barred speed and action.

After several false starts, Strawn

(Continued on page 210)

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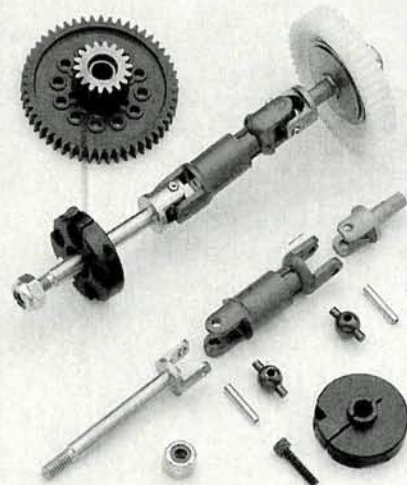
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7TH ANNUAL JG OVAL

(Continued from page 208)

jumped off the pole position and sped away with the lead, but entering turn 4 on the first lap, he again had a radio problem. His car spun out, and he was instantly dropped to *last* place. This gave the lead to Sean Young, who ripped off a 4.9-second lap—the fastest lap ever turned on this track! Soon, however, Young, too, had troubles. Chris Smith snuck up on him and took advantage of his handling problems.

After he had passed Young, Smith began to breathe more easily...until he noticed Strawn's purple car right behind him! These two battled it out for the next 30 seconds in a tremendous show of professional driving skills. They passed each other cleanly and closely without ever trading paint. With 30 seconds left, Strawn passed Smith for the final time and slowly eased away to the win!

Once again, the JG Oval provided not only fast-paced action, but an enjoyable, fair arena for some fantastic competition. It's no wonder that this race has become a perennial favorite!

SUPER 50 SPEEDWAY

(Continued from page 157)

Mike "Batman" Karsen demonstrated his collection of Batman cars, which include his latest version of the Premier Batwedge body. Dan Hodges' realistic Tide NAS CAR was the winner.

THE MAINS

Instead of the typical 4-minute races, 50-lap Main events were scheduled for the Super 50. It was hoped that this would alter the drivers' strategies, because it would take more than 4 minutes for some of the stock classes to complete their races.

With the Mains set, the green flag fell on the Off-Road Stock A-Main. Top Qualifier Chad Lyons struggled to hold off the field with his Traxxas Cat, but local favorite Larry Webb snuck up on Lyons and nipped him at the finish line with his Black Magic powered JRX-2.

Ralph Burch had reset the track record for the 52-ounce Stock Class but would once again have to contend with Dave Hering's Dominator throughout the A-Main.

(Continued on page 214)

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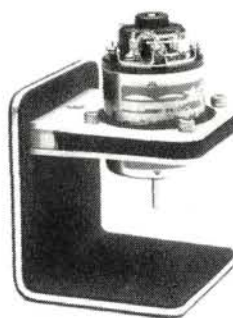
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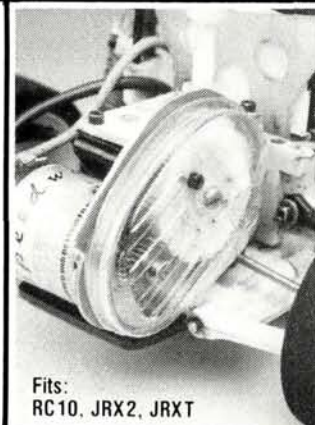
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SUPER 50 SPEEDWAY

(Continued from page 210)

Ralph's 17-turn CAM was enough to pressure Hering into making a mistake. Dave slammed into the wall and lost so much strapped-on weight that he was disqualified from his 2nd-place finish. Dave Tippet's J-Car placed 2nd behind Burch's. (Burch was the one who had bumped up Dave's old track record.)

The NASCAR Super Stock A-Main entrants included Region III TQ Larry Oppenhuizen, Region III Champ Mike Johns, Hot Rod Magazine Nationals Champ Mike Reniger, and, of course, Top Qualifier Dave Pulfer (the only driver who turned 50 laps in qualifying). I had won the ROAR Nats A-Main, and I also raced.

In the first 2 minutes, Lightnin' Larry Oppenhuizen quickly assumed the lead and

brushed away the competition, but racing teammate, Mike Johns, ran him down by flying low around the corners. Both Oppenhuizen and Dave Pulfer were breathing down John's neck, but he never wavered, and he captured his home-track victory with the entire field finishing on the same lap! This type of close, quality racing is what R/C racing is all about.

The Sprint-Car Main featured a collection of RC10s configured with various conversion kits that ranged from the TQ Josh Johnson's local Collier Cage to the new Hyperdrive/Big Boys Toys' beauty driven by Bill Morton. Rough-and-ready dicing quickly diminished the ranks, and Josh was stylin' his way to victory. Gary Myers' Collier Sprinter picked up second position, but, at the buzzer, he was three laps down to Jameson.

The A-Main for ASA Modifieds looked

like a local grudge match between Wimpy and Fantom motors. The "big boys" could only observe, because the best that they could muster were B-Main finishes. Racing on the slick Sideways City surface appeared to give a real advantage to those who made the Main.

"Big Dog" Chris Schneider and Mike Reniger went right for the throat at the start but Reniger ended up out of the race. I caught up with Schneider in my Fantom sponsored Lynx II. Round we went, door handle to door handle, as we exchanged leads. A brain cramp put my Lynx II out of contention, but Schneider's 10L kept tooling and his Wimpy teammate Dave Pulfer stayed behind for the duration. At the conclusion of 50 laps, the order was Schneider Pulfer and young phenomenon Jameson.

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(Continued on page 220)

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SUPER 50 SPEEDWAY

(Continued from page 214)

and most beautiful trophies in the Midwest, and everyone enjoyed the presentation. Special thanks go to the sponsors of this event: McAllister, Dan's RC Stuff, Hyperdrive and Bud's Racing Products. ■

TRUCK STOP

(Continued from page 52)

6031 semi-gloss black for the valve covers, and it seems to adhere well over chrome.

Detailing this engine can be fun! Since the kit doesn't include plug wires or fuel lines, you'll have to find your own. Small insulated electrical wire can be used, or you can order some scale plug wires and braided stainless-steel fuel lines from MSC Model Products. I chose MSC's no. SP108 plug wire (available in black, yellow, red and blue), Multibraid II fuel line and Multifit hex brass fittings. I used yellow plug wires and made plug boots by stripping off very small pieces of wire insulation (in a contrasting color—red or black) and sliding them over the ends of the plug wires (see drawing no. 1). Using a small drop of CA, attach the wires according to the instructions.

The next job was to attach the braided fuel lines. This is much harder to do than plug wires, but the result is worth the work. The hex fittings supplied by MSC didn't work well for me, so I devised my own. I cut 1/8-inch-long sections of 1-inch-diameter shrink-tubing, slipped them over the ends of the braid and heated them with a lighter. After they had cooled cool, I painted them to simulate anodized fittings. (You can use red or blue for this.) The result is pretty convincing! (See drawing no. 2 for details.) Install the fuel lines according to the instructions. It's best to remove the fuel-line attachment nipples on the engine parts and drill out the plastic so that it's large enough to accept the inner core of the fuel line. Use a small drop of CA to secure it.

With a little time and a lot of patience, you can have the best-looking engine at your track, or you can "wow" the judges at the next concours event! There's a variety of detailing options, and I hope that this article has inspired you. I look forward to seeing some outstanding trucks, tractors, or dragsters outfitted with detailed hemis. Study the pictures closely;

then create your very own engine detailing job! See ya next time!

*Here are the addresses of the companies mentioned in this article:

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In keeping with our constant efforts to help foster the growth of the radio-control car hobby, we print this track directory intermittently to inform modelers where they can race and exchange ideas. If you like your track listed, send the track's name, address and phone number to **R/C Car Action Track Directory**, 251 Danbury Road, Wilton, CT 06897. We'll list as many clubs as space allows.

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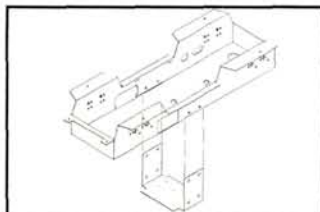


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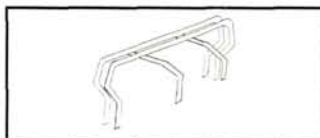
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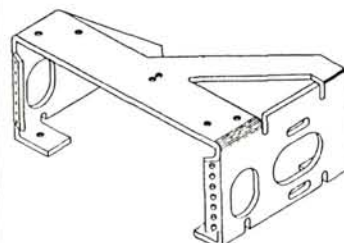
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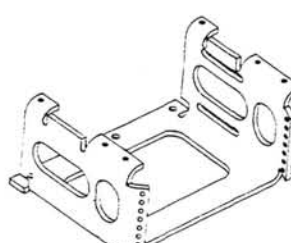
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